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Journal OF THE AMERICAN DIETETIC ASSOCIATION

VOL. 27, NO. 6 JUNE 1951

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Why Dietetics?

Changes in the Association Office

Red Cross Registration of Nutritionists Underway

34th A.D.A. Annual Meeting, Cleveland, October 9-12, 1951

Published by THE AMERICAN DIETETIC ASSOCIATION

PUBLISHING OFFICES: MOUNT ROYAL AND GUILFORD AVENUES, BALTIMORE 2, MARYLAND
EXECUTIVE OFFICES: 620 N. MICHIGAN AVE., CHICAGO 11, ILLINOIS

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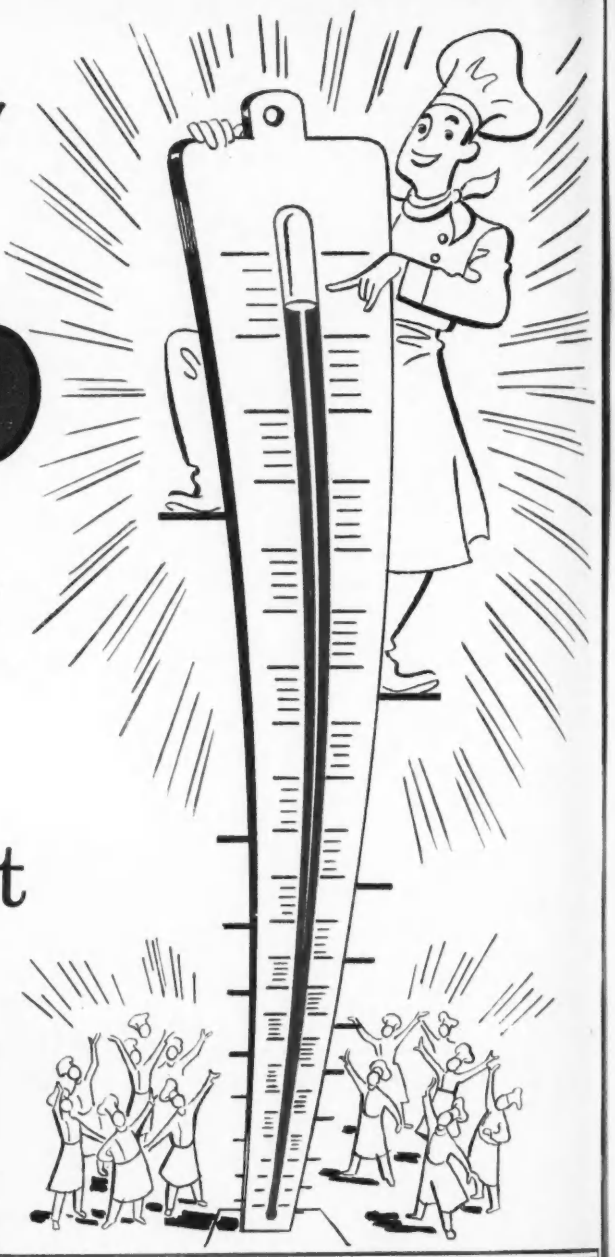

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VOLUME 27
NUMBER 6

Journal OF THE American Dietetic Association

Publishing Office
Mt. Royal and Guilford Aves.
Baltimore 2, Md.

The American Dietetic Association
620 N. Michigan Ave., Chicago 11, Ill.

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The Journal of the American Dietetic Association is published monthly by The American Dietetic Association, Mt. Royal & Guilford Aves., Baltimore 2, Md., and 620 N. Michigan Ave., Chicago 11, Ill. Neither the Association nor the Editor assumes responsibility for the opinions expressed by authors of papers abstracted, quoted, or published in full in this Journal.

Subscriptions: Rate $6 per year in the U. S., Canada, and countries of the Postal Union; all other countries, $7 per year. Special rate to undergraduate students and dietetic interns in approved internships, $1.50 per year, if order is approved by head of the department. Single copies, 75 cents. All correspondence concerning Journal subscriptions, orders for copies, or reprints from the Journal, and notices of change of address should be sent to The American Dietetic Association, Mt. Royal & Guilford Aves., Baltimore 2, Md., or 620 N. Michigan Ave., Chicago 11, Ill. Notices regarding change of address should reach the publisher by the *23rd of the month before the date of issue* on which the change is to take effect and both old and new addresses should be given. Claims for Journals lost in the mail will not be entertained more than six months after the date of the issue involved.

Editorial Correspondence: All articles and notices for publication, general correspondence, and inquiries should be sent to the Editor at The American Dietetic Association, 620 N. Michigan Ave., Chicago 11, Ill. Manuscripts are accepted for publication on condition that they are contributed solely to the Journal. Copy must be double-spaced and two copies, an original and one carbon, submitted.

Advertising: All correspondence concerning advertising should be addressed to The American Dietetic Association, 620 N. Michigan Ave., Chicago 11, Ill.

COPYRIGHT, 1951, BY THE AMERICAN DIETETIC ASSOCIATION Printed in U.S.A.

Entered as second-class matter June 30, 1925 at the Post Office at Baltimore, Md., under the act of August 24, 1912

Published monthly by The American Dietetic Association

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Psychologic Aspects of Feeding the Aged[1]

WILMA T. DONAHUE, Ph.D.

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ONE of the leading roles in the drama of increasing life expectancy which has unfolded during the past half-century has been played by the science of nutrition. In conjunction with the achievements in medicine, where outstanding progress has been made in controlling the diseases of childhood and infancy, and with the widespread improvements in the sanitary habits of our population, the work of nutrition has resulted in a vast increase in the number of people reaching the years of later maturity. Average life expectancy at birth has risen from 48 years in 1900 to 68 years in 1950; in the same period, the proportion of people in our population 65 years and older has grown from 4.1 per cent to 7.5 per cent. The end of this trend is not in sight. Impetus supplied by the discovery of the antibiotics and drugs effective in the conquest of infectious and degenerative disease gives promise of a further extension of human longevity. While at present one out of every 13, or 11 million persons, in our country is 65 or more years old, the ratio is expected to increase to one out of every 8, or 22 million persons, in the next few decades.

One of the results of this population change in an industrial economy—and in an era of small housing units—is the need for more communal living facilities for old people. Only 1 per cent of those past the age of 60, and only 3 per cent of those past 70, at present live in public or private homes, exclusive of custodial institutions for the feeble-minded and mentally ill. There is a serious shortage of good public and private institutions, because the number seeking admission far exceeds the capacity (1). Although the average old person would prefer to remain in his own home, to live with a relative or friend, or to maintain some other type of independent living arrangement, he is with increasing frequency faced with the indisputable fact that the only means by which he can afford to provide himself with standard housing, with companionship, and with medical and social services is to join in some type of congregate living plan. The implications of these trends are that the nutritionist, along with other professional personnel, will be called upon not only to serve those old people who are hospitalized or otherwise institutionalized, but also to educate, advise, and direct those still able to participate in the cooperative life of some type of congregate living arrangement.

[1] Presented at the 33rd Annual Meeting of The American Dietetic Association in Washington, D. C., on October 17, 1950.

PSYCHOLOGIC EFFECTS OF AGING

The tasks of those who are responsible for serving these older people include the determination of the psychologic effects of growing older and the development of techniques to assist the older individual in his adjustment to the aging process.

Old age is understood psychologically to be that time when the cumulative effects of the involutional processes which have been going on throughout life have reached such a magnitude as to be an effective determinant of the behavior of the individual. It is the time when the individual becomes acutely aware of some of the physical changes concomitant with aging, as well as of certain psychologic deficits, such as his decreasing ability to remember, and of the declining significance of his social role in life. The aged are often without economic role or security; unwanted in their children's homes. They are increasingly aware of diminishing energy and physical resources and of approaching terminal illness. They live in a world of decreasing emotional satisfactions and securities and may be filled with despair at the senseless living out of empty days. In short, growing old predisposes the individual toward a state of unadjustment or even maladjustment. One can do little more to resolve the persistent frustration represented by growing older than to engage in wishful thinking with the poet, Elizabeth Akers, when she entreats:

> Backward, turn backward, O Time, in your flight,
> Make me a child again just for tonight!

When faced with an enduring frustration of such magnitude as old age, many and perhaps most people are unable to make a satisfactory adjustment. In fact, the common physical and psychologic symptoms which people of any age develop when unable

to overcome frustrating circumstances are the very ones of which the old most frequently complain, i.e., excessive fatigue, aches, pains, digestive disturbances, loss of appetite, insomnia at night and somnolence in the daytime, lack of interest, concern about health, irritability, depression, and pessimism (2). In old age, life is filled with stress and continuous frustration which is understandably reflected in hypochondriacal reactions and other psychosomatic symptoms.

This is not to say that old people inevitably become unadjusted. An inspiration to those who work with the old is the knowledge that individuals who can find compensatory or substitute satisfactions for the values of youth may achieve a new level of adjustment in old age. As an illustration of this, I would like to tell you about Mrs. A., a seventy-six-year-old lady. Mrs. A. reported that after the death of her husband five years ago she saw no purpose in her life. She became sick, unhappy, bitter, was "down and out," and did not want to continue to live if her life was to be so useless. While in this unhappy condition, she was offered a remunerative position in church work, in which she had previously had great interest and success. Now, two years after accepting this position, she states that although she drives her own car about 27,000 miles a year, traveling almost continuously, virtually all of her old symptoms have disappeared, and she is filled with the zest of purposeful living in the later years.

Unfortunately, this example is typical only as it represents the experience of overwhelming frustration at being old, useless, and in the discard. Of the old people confronted with this experience, relatively few are able to resolve their difficulties and to chart a new life for themselves in which they can again achieve major success. Far more often we must deal with the thwarted, insecure old person who is without opportunity to evolve a new level of adjustment for himself. Under these circumstances we cannot expect him to react in ways compatible with earlier behavior patterns. However, we can come to understand him by taking sympathetic account of his ambivalent and unpredictable behavior, and we can re-educate and motivate him to behavior which is appropriate for the satisfaction of his needs.

NORMAL AND FRUSTRATED BEHAVIOR

All behavior is brought about by the presence of some internal tension, of which the individual may or may not be aware, which serves to motivate him to action. To understand and predict behavior, it is necessary to have knowledge of underlying motivations and of the environmental factors to which responses are made. Responses will be positive or negative depending on whether the objects in the environment have a positive valence (attract) or a negative valence (repel). Or action may be indecisive in character if the object is simultaneously positive and negative in valence (3). When profound changes take place in the external and internal circumstances of the individual, previously useful patterns of behavior may lose their effectiveness in satisfying the individual's needs. Satisfactory adjustments are accordingly made when he is able to modify his behavior and discover new modes of response which compensate for these altered circumstances.

It is in this latter respect that the older person meets difficulty. As his self concept changes from one of vitality, strength, and competence to one of a weakening, deteriorating, useless organism, he finds himself in seemingly and often actually hostile surroundings. His world now contains new and ambiguous situations which evoke ambivalent and indecisive behavior, often quite at variance with that characteristic of his earlier life.

Because of his changed physical and psychologic status and because of unfavorable attitudes toward old people, he is placed in a situation in which the normal satisfactions of his goals are often not possible. The result is that his responses take on many of the characteristics of frustrated behavior (4, 5). This type of behavior, unlike normal responses, is non-goal directed. The individual engages, actively or passively, in aggressive acts which serve to reduce his inner tensions and to attain a secondary goal of punishing the frustrating or substitute frustrating object. But these acts are usually inappropriate to the satisfaction of the goal need.

Frustrated behavior is also characteristically regressive in nature, i.e., the frustrated individual behaves in a more infantile manner than his level of personality development warrants. For these reasons, an older patient who is basically thwarted and unhappy may accept the nutritionist's statement that he must eat certain food combinations to maintain his health, and yet when his tray arrives adamantly refuse to touch a single item on it. Such a patient is simply expressing his inability to achieve a satisfactory adjustment by engaging in aggressive, purposeless, regressive behavior. Nor does he behave in this manner just because he is old. Age is a contributing factor only insofar as it is related to his inability to attain the normal satisfaction of his needs.

PSYCHOLOGIC FACTORS IN FEEDING THE AGED

A psychologic approach to the problems of feeding the aged requires an understanding of the physiologic needs of the individual plus a knowledge of some of the psycho-social implications of eating which serve as behavioral motivators.

Hunger reflects a basic need of the organism, and its gratification becomes culturally associated with the pleasant experiences of life. At an early stage, food is invested with a positive valence. More than lending satisfaction to a physiologic need, eating brings the infant into contact with the mother. The growing child finds security in the benign concern of

the family for his food habits. The whole social life of the adult is largely built around the conviviality of food and drink. Thus, hunger and appetite become dissociated, and the individual may have appetites and ingest food because of its social significance, rather than to satisfy a physiologic need.

In abnormal emotional states at any age, a disturbance in eating habits occurs frequently, such as loss of appetite, craving for a particular food, nausea at the sight of food, indigestion, insatiable appetite, and so forth. So different are the experiences, conditionings, and basic personality patterns of people that in the face of unresolved frustrations and conflicts food becomes a source of substitute satisfaction for some people (the so-called oral personality type). For others (the anal personality type), there may be an almost complete rejection of food.

In general, eating assumes a very important role in the life pattern and under normal conditions of adjustment, the individual reacts positively toward food. However, the child, aware of the great importance the parents attach to eating, may when thwarted seek to gain attention of the parents or to administer punishment to them by refusing to eat. The adult, similarly disturbed, may regress to the same infantile pattern of behavior and punish himself and others by refusing food. On the other hand, children and adults lacking other basic emotional satisfactions may overeat to the point of dangerous obesity. Ginzberg states (6) that "elderly people, especially those in their sixties and seventies, suffer from too good an appetite, although 'indigestion' and other gastronomical troubles, such as constipation, diarrhea, belching, heaviness, abdominal pain and flatulence occur often among them." Such overeating may reflect the emotional poverty of the old people whose days often contain so little of interest or value that eating becomes the most important satisfaction and compensation of living. Stieglitz contends (7) that many old people overeat because food acts as a sedative. It makes them drowsy and stupefied and renders them less acutely aware of their unpleasant emotional situations.

The problem which evolves for the dietitian in the feeding of the aged is threefold: (a) understanding the dynamics of behavior; (b) appreciating the importance of individual differences in reactions to food; and (c) motivating each patient to establish eating habits which will ultimately bring about his optimum nutritional and personal adjustment.

We have already devoted our attention to the first two aspects of the problem. The third is perhaps the most significant for the practicing nutritionist. Unfortunately, there are as yet no objective studies on feeding the aged which have been experimentally designed in accordance with a conceptual structure of the effectiveness of various psychologic motivators. As a consequence, we are forced to base our recommendations upon theoretical knowledge of human behavior and upon the knowledge accumulated from the observations of geriatricians and others who serve the aged.

RESPECT OLD FOOD HABITS

One of the first recommendations made by modern geriatricians is that drastic changes in food habits should not be imposed on the older person. It is argued that old people are naturally cantankerous, conservative, and unwilling to change; that the digestive tract though less efficient in old age will nevertheless last throughout the life span; and that old people digest more readily those foods to which they are accustomed. Ginzberg documents these arguments (6) by pointing out that while physicians of every country agree upon the expediency of a convalescent diet, there are marked differences in the diet recommended depending on the ethnological customs and food habits. For the Frenchman's convalescence, for example, there must be *bouillon de legumes* which has been cooked for hours. It would be a grievous error, however, to suggest the same soup to a German or an American. In Germany, the preferred meat for a light diet is veal. Not so in our country, where lamb chops or steak would be more acceptable.

RETRAIN—OLD PEOPLE CAN LEARN

Because these concepts fit the accepted stereotype of old people as cranky, suspicious, uncooperative, and resistant to change or to the learning of new modes of reaction, they challenge close examination. I cannot, of course, question the medical opinion that the older person enjoys, prefers, and digests better the foods he has been eating throughout life.

However, if circumstances arise which make it expedient for the old person to adopt new eating habits, he has the capacity to accept the new ideas and to learn and follow suitable patterns of reaction. Indeed, older people derive the same exhilaration from learning and adopting new modes of behavior as do young people, and despite common beliefs to the contrary they continue quite capable of learning throughout the major portion of the life span. For instance, Hamilton points out (8) that a striking example of the educability of aging persons is found in their intellectual reactions to psychotherapy. His patients in their sixth and seventh decades showed as good a grasp of the difficult psychoanalytic formulations as did his younger patients.

The nutritionist, accepting the belief that old people can learn, will set about to educate them in much the same manner as any other group. Perhaps Mark Twain was right when he said 'habit is habit, and not to be flung out the window by any man, but coaxed downstairs a step at a time.' But, under proper conditions, retraining of habits—even those of long standing—can be accomplished in an amazingly short time.

DEVELOP USEFUL ATTITUDES TOWARD OLD AGE

Probably one of the most basic rules for the nutritionist or any other person serving old people is the development of a personal attitude of acceptance toward growing old. In our social culture, old age is looked upon as an affliction, something to be dreaded and warded off at all costs, and a source of shame when it finally overtakes us. The prestige which in several countries accompanies age is not a pattern of American culture. To illustrate the relentless pursuit by the American people of the values of youth, one need only turn to the advertising sections of any current magazine.

This attitude is apt to be projected by workers in dealing with the aged patient. As a result, they may be unable to relate themselves positively to old people and their problems. Unless the rejection of age can be set aside, workers will continue to adopt patronizing attitudes which are so frustrating to, and so much resented by the old. It is therefore necessary, if negative attitudes toward aging are to be overcome, to develop a philosophy of growing old which permits an appreciation of the values of living a long life, and which places old age in biologic and psychologic perspective with the master plan of life (9).

Once the nutritionist has achieved a positive orientation toward aging, it will be much simpler to carry out the practical suggestions which I should now like to make. The patient should be approached with the belief that he can learn, that he can be retrained. Condition him through positive experiences to believe that you respect him as an individual. It should be remembered that the patient and the nutritionist live in utterly different worlds, within which a given action may have entirely dissimilar meanings. Sensitive to the cold routine of institutionalization and the tendency on the part of most people to reject the aged, the older person becomes firmly convinced that he matters to no one, that he is in the way, and that all who serve him are totally impersonal. Acceptance of the old person does much to reactivate his ego and to establish rapport with him. When a comfortable interpersonal relationship with the patient has been established, take the time to talk over completely the objectives of the nutritional program you have planned. In this teaching relationship, not only will the old person learn new dietary facts and habits, but, in addition, the nutritionist will contribute to the patient's attainment of a better level of personal adjustment.

ADAPT ROUTINES TO ENCOURAGE MODERATION IN EATING

As I have already mentioned, the digestive system undergoes certain changes in function attributable to age. However, if necessary modifications are made in the diet to compensate for and take account of these changes, there is little evidence that it becomes a less efficient mechanism for digesting food. There is more evidence indicating that the tolerance of the digestive system for abuse lessens with age, and geriatricians accordingly are practically unanimous in their recommendation of moderation in eating practices. Psychologically, the problem becomes one of stimulating the appetite of those who undereat, and of controlling habits of overeating in persons tending to be gluttonous. In both cases, the practice of smaller and more numerous feedings may be employed. Explanation for this practice may be made to the patients in terms of the truth, i.e., that they will have more energy available at all times with less cost to the physical organism. Both the overeaters and the undereaters can be educated to understand the initial discomforts associated with the change from the habitual quantity of food intake. The added and personalized attention involved will do much to stimulate their interest in cooperating.

CONSIDER THE ENVIRONMENT

A balanced diet, at regular intervals, in as pleasant surroundings as possible is a prescription often given for good nutrition in older people (10). Such a prescription recognizes the importance of paying attention to environmental factors having psychologic significance. Examples of practices which take these factors into account include: (a) serving attractively arranged trays; (b) giving special attention to the décor of the institutional table; (c) serving extra-quality, out-of-season, or specially-prepared foods; (d) changing food flavors or food types (which is especially important in institutional settings where variety of cooking style is at best limited); (e) using food colors in attractive combinations; (f) eliminating foods which are embarrassing for the individual *sans dents* to masticate in the presence of others; (g) avoiding foods against which the individual may have developed a phobia; and (h) giving special attention in the form of an occasional favorite dish prepared from a cherished recipe. In addition, improvements in the general living quarters with the addition of fresh paint, color, drapes, bedspreads, plants, and so forth may have a profound effect on the patients' morale which may be reflected in improved nutritional habits.

SEEK THE ASSISTANCE OF OTHER SPECIALISTS

Each of these rules may be followed rigorously and yet the patient may continue to be a dietary problem. A tray may be returned day after day with food almost untouched, although the patient is obviously undernourished and has no medical condition which prevents food assimilation. Another patient may demand far more food than is consistent with his nutritional needs. In such instances, it may be assumed that there are underlying psychologic factors which must be resolved before the individual can react normally. At this point, the dietitian, if her

responsibility for the patient ends with the planning of diets, foods, and services and the encouragement of good nutritional habits, will turn to other specialized personnel and facilities for help in managing the patient.

One of the special services which can be used is that of the social case worker, who is equipped to assist the individual to achieve a satisfactory psychologic adjustment. Working directly with the patient, the case worker can help him understand the basis of his reactions and his negative attitudes toward prescribed dietary routines. She may also work with the family and relatives so that they will realize their responsibility for the psychologic well-being of their older members beyond financial provision for their domiciliary care. Too frequently, families feel that they have discharged their duties toward older parents and relatives when they have provided the most expensive quarters available. How often one hears the comment: "We can't afford it, but we have Mother in a convalescent home (or hospital) where the rooms, the staff, and the meals are lovely, but Mother doesn't like it at all. She complains about everything and she wants to come home." Families need to learn that it is not a lack of appreciation or spiteful cantankerousness which makes the mother dissatisfied, that although she may be well, she does not have the strength to plan for her own emotional needs. She is a deposed personality. Where formerly she lived independently, was administrator of her own home, had position and status in her family and community, and played a constructive and socially worthwhile role, she is now increasingly dependent on others for financial security and emotional satisfaction. How much easier the nutritionist's task would be if families who have older members living in convalescent homes or hospitals would accept the responsibility of continuing to include them in their planning and of permanently extending them the satisfaction of family ties and companionship!

One of the reasons for the nutritionist's difficulty in meeting the dietary needs of older patients is that they have little else to do but think and worry about their physiologic functions. Johnson comments (10) that it is natural for the older person to become increasingly introspective, and, in consequence, to pay more attention to his digestion than is actually necessary. Do not both these types of behavior stem from the same underlying problem, i.e., that old people are left with nothing useful to do? What improvements might be brought about through a program designed to meet their psychologic needs? It is a rather well-accepted fact that many of the aged, now bedridden or semi-ambulatory, could be rehabilitated and motivated to participate in many of the activities of normal life. Characteristically, old people, after a few months of hospital or institutional life in which no psychologic fare is provided, lose their zest for life, and a subtle deterioration of the personality occurs which renders them apathetic, unimaginative, and fearful. Thomson, working in English institutions, found (11) that a large percentage of old people in institutions who could be rehabilitated did not wish to become well because they were afraid to return to the outside world in which they had already met defeat. Ju-Shu Pan in this country has reported (12) that although people in homes for the aged are less happy than those living independently, they enjoy a greater feeling of security. How can the dietitian motivate old people to eat wisely to improve their health when they may consider that such an improvement represents a threat to their security?

The answer, of course, lies in providing a stimulating and worthwhile program of activities within the institution. There are ample data from army and navy reconditioning programs in this country and in England to show the beneficial effects of stressing the psychologic recovery of patients. Colonel Thorndike, Chief of the Reconditioning Division, Office of the Surgeon-General, U. S. Army, emphasizes the need for planned convalescent care with scientific scheduling of a program of mental and physical restoration fitted to the needs and abilities of each patient. Keeping the patient's free time completely occupied with non-medical activities operates to reduce the potency of a situation of sickness and lessens the time available for introspection and contemplation of the idiosyncrasies of the alimentary canal. A program of activities need not be a highly complex and expensive operation, but it should be designed to meet the psychologic needs of old people (13–15). The nutritionist can take advantage of the educational features which may be incorporated in such a program and, in addition, profit from any resulting improvement in attitudes among the patients.

In conclusion, I would like to emphasize again that: (a) the psychologic needs of older people are no different from those of their earlier years; (b) that they react as do people of any age when frustrated; (c) that their frustrations and conflicts may have physical symptoms which defeat the nutritionist's best efforts to establish adequate dietary habits; and (d) that in persistent cases, when the usual procedures fail, other services and facilities must be enlisted to help bring about a better adjustment of the patients before their nutritional needs can be met.

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California's Twenty-Fifth Year

On November 18, 1950, California dietitians gathered in Fresno to celebrate the silver anniversary of the organization of the California Dietetic Association. Ten of the sixty-one charter members were present, including Helen B. Anderson, first President. In appreciation of her active participation in the growth and development of the Association, Miss Anderson was made Honorary President and presented with a silver gavel.

The formation of a state association in Fresno in October 1925 was the outgrowth of at least two sectional groups which had been functioning since 1917—one in the northern part of the state, the other in the southern section. To the dietitians in the southern section goes the credit for the first attempt by dietitians to standardize terminology for patients' diets, which resulted in the publication of the "Compilation of Diets" in the fall of 1925. This manual, in revised form, is still widely used.

At the first state convention, held in Oakland in April 1926 in conjunction with the California Medical Association, the president of the Medical Association commented on the noticeable increase in the comfort and happiness of patients since the development of dietetics as a profession and confirmed support by the medical profession of the high standards of education and ethics for which the dietitians were striving. At this first convention, too, the Council was authorized to affiliate with The American Dietetic Association, which was accomplished the following fall.

In 1929, the Education Committee, with the help of hospital superintendents and university faculty members, planned a curriculum for dietetic majors which would provide sound training in certain fundamental courses. In addition, standards for a hospital training course were developed. In 1933, the Association sponsored the "California Course for Student Dietitians," in which six hospitals participated, providing a year's training for a total of twelve students. With this background, it was comparatively easy for the California dietitians to adapt their training programs to the standards established by The American Dietetic Association.

At one time the *Western Dietitian* served as the official organ of the state Association, to be followed by the leaflet, *Food Facts*, and still later by a column on Association news in *Western Hospital*. In November 1933 the first *Bulletin of the California Dietetic Association* was published. It appeared three times a year until 1939, when it became a quarterly.

In 1930 four local groups were formed and affiliated with the state Association: the Northern, Southern, Santa Barbara, and San Jose Sections. San Diego and Sacramento later formed sections, and at the anniversary banquet in 1950, the Fresno Section was officially recognized.

Also worthy of mention in the history of the Association are: (a) the support given to the University of California Medical School in establishing a camp for diabetic children in 1937. The financial responsibility of the camp dietitian is still met by the Association. (b) The twenty-second Annual Meeting of The American Dietetic Association in Los Angeles, for which the California Association served as hostess. (c) The establishment of a central office in Los Angeles in 1946, financed by contributions from individual members.

The California Dietetic Association has grown from 61 members in 1926 to 614 in 1950, and is continuing to strive toward higher professional status for its members, many of whom have extended their interests beyond the borders of the state and have actively participated in the work of the national Association.—*Helen E. Walsh, Chief, Nutrition Service, California Department of Public Health, and Past-President, The American Dietetic Association.*

Food Service in Homes for the Aged[1]

I. Evaluation of Food Served

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WHAT old age has for the past half century been creeping slowly upon the United States as a nation has been pointed out many times. The physiologic aging of our population has become so well known that it can be summed up very briefly: In 1900, only one person in 25 was 65 years of age or older; today, one in 13 is at least 65, and the trend is toward a continuing increase in this proportion (1). The problems of caring for the aged and the aging are constantly being brought to our attention through new books, new journals, and countless articles on geriatrics, gerontology, and social economics.

The relation of good nutrition to longevity and to human usefulness has also been well established. Kruse (2) has said, "There is strong reason to believe that superior nutrition is conducive to longevity." Ohlson (3) and Ohlson *et al.* (4) have shown from careful dietary records kept by older women in excellent health and by women of the same age group who are less healthy that there is a direct relationship between the quantity and quality of food eaten and the vigor and work capacity of older women. Crampton (5) has emphasized the importance of good food in the treatment of the aged in his statement "Foremost in the field of geriatrics is a thorough understanding and appreciation of the importance of good food and good nutrition." Surgeon General Scheele has said (6), in support of the expanding nutrition program of the U. S. Public Health Service: "With the shifting of emphasis from the communicable diseases to the chronic diseases—today's number one health problem—the field of medical nutrition assumes greater and greater importance. Progress in communicable disease control already has resulted in a significant increase in the average age of the population, and this trend can be expected to continue. This in turn gives added significance to the whole field of medical nutrition, since what we eat or do not eat may have an important bearing on the aging process."

In the early years of our national society, it was the custom for families to live together. Houses tended to be large and, as Margaret Mead has said, "the bulk of the homes in this country did very well with grandmothers, and uncles and aunts and cousins and younger sisters." But, as we have moved out of an agricultural society and into cities, our social patterns have changed, too. Houses are smaller, and living is more costly. Feamon points out (8): "There is no space for the aged. The employment of women outside the home has been a problem in child care for some time. Now it is a problem in relation to home care for the aged."

What, then, is becoming of our senior citizens? Where do they live? Since their food is so important, how much attention is being paid to its selection, preparation, and service? This problem was posed by the Diet Therapy Section of The American Dietetic Association. The obvious place to look, first, was to the homes for the aged. A project—"The Evaluation of Food Served to the Aged in Institutions"—was set up, its purpose being at first to consider the size and nature of the problem, and the provisions now being made for food service in such institutions.

METHOD

A questionnaire was developed and sent to the Diet Therapy Chairman of each state and territorial dietetic association. Six questions were asked, covering:

(a) The number of homes for the aged in each state.

(b) Licensing provisions.

(c) The approximate number of people eating in homes for the aged (both residents and staff).

(d) The person responsible for regular food service and for special diets.

(e) The possibility of members of local dietetic

[1] Report of National-State Diet Therapy Project #1, 1949–50, The American Dietetic Association—Vera W. Walker, Chairman. Presented at the 33rd Annual Meeting of The American Dietetic Association in Washington, D. C., on October 17, 1950.

associations making an evaluation in a sampling of homes of the food being served.

(f) The sources of information consulted in obtaining the data presented.

RESULTS AND DISCUSSION

The questionnaire was sent to forty-seven state and territorial dietetic associations. Of these, 41 (87 per cent) replied; two of the six which did not reply have relatively small populations, and probably a very small dietetic association. In 10 states it was impossible to obtain the information requested, because the states have no licensing laws and apparently no state agency or other organization had obtained or compiled the information. Completed or partially completed questionnaires were returned by 35 state associations (74 per cent), while 12 sent additional information which was pertinent, interesting, and shed further light on their situations. The additional information included copies of the licensing law or of the food section of the licensing law, letters from consultants of welfare or health departments concerning the situation, newspaper editorials, copies of recent articles published in state health or welfare journals, and a copy of a handbook for the food service directors of small hospitals or other institutions.

Number of Homes for the Aged

It became clear from the questionnaires returned that we had not differentiated between a boarding home, a nursing home, a home for chronically ill aged persons, and hospitals or infirmaries. The replies included data for various combinations of types of institutions.

In 22 states, there are known to be at least 838 public homes. These range from 1 in each of 3 states to 278 in one state. There are at least 3483 private homes known to the persons reporting in 27 states. Many of these are small and care for less than 10 persons. One state, California, has 2126 licensed homes which, with those in the 19 other states reporting, total 5708 licensed homes. In 18 states, there are at least 1109 unlicensed homes. Of course, most of the unlicensed homes are in states which have no licensing laws, or where those laws apply only to homes giving medical care, or to those giving care to recipients of public assistance.

Licensing Provisions

Of the states replying to this question, 25 have licensing laws. Licensing may apply only to homes caring for 3 or more persons, for 6 or more persons, for 3 or more "pensioners," where medical care is included, or to hospitals, nursing homes, and mental institutions. Ten states are known not to have licensing laws, according to the replies received. In at least 6 states, licensing is the responsibility of the state welfare agency; in at least 11 states, this responsibility rests with the state health agency.

Approximate Number of People in Homes for the Aged

Even in states which have licensing provisions, it is difficult to learn the number of people being housed and/or fed in institutions for the aged. Some do not keep records of the number of residents, and others do not keep records of the number of staff members. We included the question on the number of staff as well as residents, because obviously the food served to staff members affects their nutrition in the same manner that residents' diets affect them. In the 21 states where data on the number of residents are available, there are 70,600 residents. In addition, there are at least 5322 staff members in the 10 states where that information could be obtained; one state has almost half of those staff members: 2263.

Responsibility for Food Service

In 24 of the states reporting, there is no institution for the aged in which a professional dietitian is known to be employed. In 9 states, one or more dietitians are employed. This includes 2 states having one dietitian each, 2 states having "one or two," one state having "one dietitian and a part-time dietitian," one state having 3, one with 4, one with 9, and one with 10. The total number known to be employed is 32½.

Where there is no dietitian, (obviously the rule), the responsibility for food service rests with "no particular type of person." The cook was mentioned most frequently; also mentioned were the manager, superintendent, matron, operator, proprietor, licensee, woman with cooking experience, and nurse. One state specifies in its "Standards" a "person with knowledge of nutrition, meal planning, and food service."

If special diets are required, they are prescribed by a physician. His orders are carried out by a nurse, the operator, the manager, the matron, the cook, or the person in charge. Some institutions will not accept as a resident anyone who requires a special diet; in other instances, there is "little plan for special diets."

In 2 states, the same menus are always served to staff members and residents. In 16 states, the residents and staff members usually have the same menus, although they may be more attractively served to staff members. In 8 states, the same menus are rarely served. A comment from one state was that staff members rarely eat in the institutions where they work.

Evaluation of Adequacy and Palatability of Food

The person returning the questionnaire in 22 states believed that the local or state dietetic association "in some places" would be interested in evaluating

the food in a sampling of institutions. In 10 states, the person replying felt that such evaluation by an unofficial organization would be inadvisable at present because an official study is being made, because the dietitians do not have the time, or for other reasons. In at least 16 states it was felt that entrée could be obtained, and in some instances the licensing agency and the staff of some of the homes have indicated that they would welcome such a service from dietitians.

How Did You Obtain This Information?

The replies usually came from the diet therapy chairmen of the state and territorial dietetic associations. Sometimes the president replied herself, and sometimes the reply came directly from the nutritionist or dietary consultant of the state health department to whom it had been referred. Often, the replies represented group activity which included a consultant from either the health or welfare department. The welfare agency was mentioned as a source of information for 27 replies, the health agency for 24 replies, and the observations of the group replying for 10 replies. In at least 2 states, questionnaires were sent to all known institutions and their replies were compiled by the state diet therapy chairman. For only one reply did the group completing the questionnaire rely on its own observations, solely.

RECOMMENDATION FOR DEVELOPMENT OF THE PROJECT

This survey has shown that a large but unknown number of senior citizens are residents of homes for the aged (which includes boarding homes, nursing homes, county or town farms, convalescent homes, rest homes, infirmaries, and other types of institutions). It has indicated that while there is a growing tendency for licensing and/or supervision of such homes by official health and welfare agencies or by agencies set up specifically to supervise institutional, hospital, and medical care programs, many states do not have licensing provisions.

In the light of modern knowledge of the importance of proper food in the care, treatment, and rehabilitation of the aged and chronically ill, dietitians who believe with Mann and Stare (9) that "nutrition is the most important single environmental factor affecting health" will feel deep concern that greater care is not taken for the provision of adequate and proper food for residents and staff members of institutions for the aged. It is recommended that wherever possible, arrangements be made for planned, regular consultation service by dietitians to operators of institutions for the aged. Such arrangements may be made at the local community level by local dietetic associations and/or at the state level by state dietetic associations in cooperation with health and welfare agencies whether or not there are licensing laws.

SUMMARY

In order to obtain information concerning the provision of food for the aged in institutions, a questionnaire was sent to 47 state and territorial dietetic associations. Replies were received from 41 associations; 12 included additional information not specifically requested. The outstanding response to this questionnaire appears to indicate considerable interest on the part of state dietetic associations in this problem.

At least 36 states have provisions for licensing and supervising homes for the aged, but the laws may be more or less limited in their application. Responsibility for licensing usually rests with the health or welfare agency, or is jointly held by both agencies.

There are at least 75,922 residents and staff members in homes for the aged in the 21 states where such information was obtainable, but in only 9 of these states are there known to be dietitians employed in such institutions. Where there is no dietitian, responsibility for regular food service may rest with the cook or with any of several other persons. Special diets, where necessary, are customarily prescribed by a physician whose orders may be carried out by a nurse, the cook, or any one of several other staff members. The need for greater concern for the provision of proper and adequate food for residents and staff is apparent.

In 22 of the 41 states replying, a project of evaluation of the food service in a sampling of homes would be of interest to the members of a state or local dietetic association.

Appreciation is expressed to the diet therapy chairmen, the state presidents, and the consultants from various health and welfare agencies who responded so well to the questionnaire and sent additional information where it was available. The replies represent much time, effort, and in some instances, considerable ingenuity in searching out the facts.

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Food Service in Homes for the Aged

II. Provisions and Regulations of State Standards

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BECAUSE of the growing number of senior citizens who are living in institutions for the aged, and the concern which dietitians feel for their nutrition, the Diet Therapy Section of The American Dietetic Association last year set up a project called "The Evaluation of Food Served to the Aged in Institutions." The first function of the project was to make a preliminary survey of the number of people living in institutions for the aged and the provisions now being made for food service in those institutions. The findings of the preliminary survey have been reported in the preceding paper (1).

The state Diet Therapy Chairmen and other members of The American Dietetic Association showed so much interest in the problem that the project was continued for the year 1950–1951 with the following aims:

(a) To evaluate food service to the aged in institutions.

(b) To study provisions for food service now found in state licensing laws for such institutions.

(c) To develop tools which can be used by state and local groups in helping those responsible for food service.

(d) To plan for local consultation service to institutions desiring such aid.

The present report is concerned with the second aim and is a study of the licensing laws which govern institutions for the aged. The preliminary survey showed that at least twenty-five states have licensing laws covering convalescent homes, nursing homes, and boarding homes for the aged, although the laws may be more or less limited. The survey also indicated the agency responsible for the administration of the licensing act.

For the present study, a letter was written to the licensing authority in each state known to have a licensing law, requesting a copy of the act and of the standards or regulations which implement it. A letter was also written to the welfare commissioner in all the states for which information had not already been obtained, asking whether the state has a licensing law and, if so, requesting a copy of the act and of the standards or regulations. If a reply was not received within a reasonable length of time, a second letter was written.

As the information was received from each state, an abstract was made of it showing: (a) the agency responsible for administration of the law, (b) the types of institutions to which the law applies, and (c) the food service provisions of the regulations.

RESULTS

The information obtained is presented in the appendix to this article.

Only one state did not reply. The preliminary survey had indicated that that state does not have a licensing law.

The following states do not now have state-wide licensing laws covering homes for the aged or infirm: Arizona, Arkansas, Florida, Kentucky, Mississippi, Nevada, New York, South Carolina, Wisconsin, and Wyoming. In several of these, however, legislation is currently under consideration. In New York State, there is no licensing law, but the Department of Social Welfare inspects and supervises matters "directly affecting the health, safety, treatment, and training" of residents of institutions. The broad powers of this department appear to have the effect of a licensing law. The Welfare Council of New York City has developed a set of "Suggested Standards for Homes for the Aged" (2) which is more comprehensive and specific than most of the state regulations.

Washington State has a unique situation; the law is a local option law which provides that county commissioners may license "places of refuge," if the regulations they set up are not less strict than those set up by the Department of Social Security. Nursing homes which care for recipients of public assistance must be licensed.

Thirty-six states are known to have licensing laws of some kind. In a number of states, institutions are

classified according to the type of care they give or their residents require. In such instances, the state health agency may license the institutions which give any type of medical or nursing care while the state welfare agency licenses the institutions which provide board, room, and custodial care but do not accept persons who need nursing care. In other instances, institutions which provide medical or nursing care may be required to be licensed while institutions which are boarding homes only may not. In some states, the State Department of Public Welfare licenses only those homes in which recipients of public assistance are cared for. By July 1, 1953, state public assistance plans for all states which receive federal funds for their Old Age Assistance programs must provide that if payments are made to individuals being cared for in public or private institutions, a state authority will be designated to establish and maintain standards for those institutions. This is one of the provisions of the amendments to the Social Security Act passed by the 81st Congress.

The regulations of almost every state which has a licensing law specify certain sanitary facilities and practices necessary for the proper handling of food. In five of those states, however, the regulations do not mention that food should be served. Some of those states stipulate that milk shall be pasteurized and ice shall be from a satisfactory source and handled in a safe and sanitary manner. This is true for Idaho, Minnesota, Montana, Tennessee, and West Virginia. In West Virginia, the regulations include what foods shall *not* be served "decayed, spoiled, contaminated, unwholesome" and in another chapter the final paragraph on "Regulations for Specialized Services" states: "Dietary Department: It is desirable that a full-time dietician, who meets the qualifications for membership in The American Dietetic Association, be employed and that the fullest use be made of modern concepts of optimal nutrition." There is no mention of either food or food sanitation in Pennsylvania's regulations.

The regulations of several states list the daily food needs of an inactive or sedentary person in terms of servings of the various food groups. A few states specify that certain foods shall be included in the menu: "Adequate amounts of milk, eggs, green and yellow vegetables, and citrus and other fruits shall be included in the menu. Meat, fowl or fish should be served daily and must be served as a minimum on 3 separate days each week. Special diets as ordered by physicians or as contracted for in advance, shall be provided" (Virginia).

California and Kansas, especially, but several other states also, tell of the special food needs of elderly persons and of the importance of pleasant mealtimes in the daily routine of residents.

In at least two states, New Mexico and Utah, provision is made for dietary consultation service: "In institutions where a trained dietitian is not employed, the services of a trained dietitian or a nutritionist, available to the community, or a nutrition consultant of the Licensing Agency shall be obtained periodically to consult with the personnel of the dietary department on the storing, preparation, and serving of food and the planning of menus and special diets" (New Mexico).

It is self-evident from the summary of food service provisions and regulations in the appendix that dietitians serving in a consulting capacity could be of great service to the person responsible for food service in homes for the aged by interpreting the standards and by helping to plan appetizing, low-cost, adequate meals which will meet the standards.

The food service provisions now found in many state laws are good, but in other states dietitians could help to phrase them in more specific and realistic terms. The regulations provided by such states as California, Kansas, and several others as well as the "Suggested Standards" of New York City might serve as helpful guides to persons who are preparing and revising state regulations. As standards are revised from time to time and as new standards are prepared for the states not previously having laws, it is hoped that they may reflect the thinking of dietitians. Toward these ends, the state dietetic associations might well offer their services to the directors of the state licensing programs.

REFERENCES

(1) WALKER, V. W.: Food service in homes for the aged. 1. Evaluation of food served. J. Am. Dietet. A. 27: 467, 1951.

(2) Suggested Standards for Homes for the Aged. 6th ed. New York, N. Y.: Welfare Council of New York City (44 E. 23rd St.), June, 1948.

STATE REGULATIONS

ALABAMA

Agency: State Health Department. *Institutions covered:* boarding and nursing homes. *Regulations:* law is new and regulations not yet available.

ARIZONA

No licensing laws for homes for the aged.

ARKANSAS

No licensing laws for homes for the aged and nursing homes.

CALIFORNIA

Agencies: State Departments of Public Health and of Social Welfare. *Institutions covered:* Department of Public Health administers law pertaining to private hospitals, nursing homes, other institutions which care for human illness; Department of Social Welfare, private homes and institutions caring for aged. *Regulations* (for private homes and institutions caring for aged): adequate, nutritious diet to be provided. Food to be adapted to needs of older persons and their chewing ability. Meals to be planned by person with knowledge of nutrition, meal planning, and food service. Menus to take advantage of fresh foods in season (daily food needs listed). Never have same menu same day of each week. Special diets as ordered, and tray services if needed. Three meals a day to be served with other snacks as desired. Staff and residents to have same quality food. Mealtime not to be regimented; guests to be allowed to take cookies or fruit to their rooms. Dining room to

provide 15 sq. ft. per person, to be attractive, with sturdy, well balanced chairs; linens, silver, dishes to be adequate. Kitchens to be planned for convenience, sanitation, healthful working conditions, control of noise, heat, and odors. Facilities to be adequate for given standard, depending on number of persons to be served. Adequate and proper storage facilities and refrigeration to be provided. Cooking utensils, dishes, etc., to be in good condition, properly cleaned and sanitized as governed by Health and Safety Code. Food handlers to be clean, healthy, wear hair nets. Toilet and handwashing facilities to be provided. Leaflets and other helps available from Department of Social Welfare.

COLORADO

Agency: State Department of Public Health. *Institutions covered:* boarding and nursing homes. *Regulations:* not yet available.

CONNECTICUT

Agencies: State Department of Health and State Public Welfare Council. *Institutions covered:* Department of Health administers law pertaining to hospitals, mental institutions, maternity homes, chronic and convalescent nursing homes; Public Welfare Council, boarding homes for the aged. *Regulations* (for boarding homes for aged): food must meet basic nutritional requirements provided by State Department of Health; must be well cooked. Meals to be served on regular schedule. Kitchen, food storage, and refrigeration to be kept under sanitary conditions.

DELAWARE

Agency: State Board of Health. *Institutions covered:* sanitoria, rest homes, boarding homes for aged and infirm, ill, or convalescent persons. *Regulations:* food to be "wholesome, ample, of sufficient variety, and suited to needs of population, with special diets as needed." Adequate sanitary facilities to be provided for preparation, cooking, and serving of food and for storing perishable and staple supplies. Dishwashing facilities and practices to be adequate and safe.

FLORIDA

No licensing law for institutions for adults.

GEORGIA

Information not received.

IDAHO

Agency: State Department of Public Health. *Institutions covered:* nursing, rest, convalescent, and old folks homes. *Regulations:* pasteurized, condensed, evaporated, or dried milk to be used. Milk to be served in original container. Ice to be from approved source, handled in sanitary manner. Adequate facilities for proper preparation and serving of food, and clean, ventilated storage space of type to prevent contamination to be provided. Food handling standards of State Board of Health to apply. Refrigeration facilities to be adequate to maintain 50°F. Dishes and utensils to be cleaned, disinfected by 2-min. immersion in 170°F. water, ½-min. in boiling water, or 2-min. in chlorine solution of 50 p.p.m. Clean dishes to be handled in sanitary manner, stored in closed cupboards. Handwashing facilities to be provided.

ILLINOIS

Agency: State Department of Public Health. *Institutions covered:* nursing homes, residences, other institutions which care for persons who by reason of illness or physical infirmity are unable to care for themselves properly. *Regulations:* well balanced diet of good quality food, correctly prepared, and of sufficient quantity to meet nutritional needs of residents to be provided. Special diets as ordered by M.D.

INDIANA

Agency: State Department of Public Welfare. *Institutions covered:* private nursing homes. *Regulations:* proper and adequate diet to be provided all patients. Special diets when ordered. Kitchen and serving room to meet requirements of State Board of Health for restaurants.

IOWA

Agency: State Department of Health. *Institutions covered:* nursing homes, sanatoria, rest homes, boarding homes for the aged, related institutions. *Regulations:* food to conform to U. S. Dept. of Agriculture Nutritional Standards for Sedentary or Incapacitated (kinds and quantities per person per week listed). At least 3 meals per day to be served at regular hours. Special diets as ordered by M.D., with record made on patient's record. Ice to be from safe source, handled in sanitary manner. Fluid milk to be pasteurized. Dining areas to be adequate for patients and personnel. Storerooms to be adequate and clean; refrigeration, adequate to maintain 40°–50°F. Poisons, insecticides not to be stored with food. Dishwashing to be by approved, sanitary method, including bactericidal treatment by 2-min. immersion in 180°F. water, or 1-min. in boiling water. Drinking water to be stored and dispersed in sanitary manner. Handwashing facilities to be provided. Annual health certificate for *all* personnel.

KANSAS

Agency: State Board of Social Welfare. *Institutions covered:* boarding, nursing, rest, convalescent, or care homes for adults, if recipients of Public Assistance are sheltered. *Regulations:* each person to be served sufficient food, properly prepared to provide adequate diet based on nutritional standards in National Food Guide, U. S. Dept. of Agriculture. Three meals to be served daily at regular hours. Special diets as ordered by M.D. Adequate supply of drinking water always to be available. Kitchen and food service equipment to comply with regulations of State Board of Health. Housekeeping to meet acceptable standards of cleanliness and orderliness. Recommendations: diet of simple, easily digested foods, emphasizing green vegetables and fruits, paying attention to texture of food for persons having difficulty with dentures (satisfactory daily diet listed). Meals to be served in dining area of adequate size, using attractive dishes, silverware, linens, with ample time allowed. Main meal at noon; at least one hot food in evening. Between-meal snacks as needed. Menus to be recorded, filed, open for inspection.

KENTUCKY

No licensing law at present.

LOUISIANA

Agency: State Department of Public Welfare. *Institutions covered:* Private homes caring for aged, physically handicapped, or otherwise disabled recipients of Public Assistance. *Regulations:* each person to be served sufficient food, properly prepared to provide an adequate diet based on nutritional standards of National Yardstick for Good Nutrition of U.S. Dept. of Agriculture. Diet to consist of simple, easily digested foods, emphasizing green vegetables and fruits, to be planned considering texture for edentulous persons and those with poorly fitting dentures (daily food needs listed in terms of servings). Special diets as ordered by M.D. At least 3 meals per day to be served at regular hours. Water always to be available. Dining room meals for all who can go to dining area, with ample time allowed. Mid-morning, mid-afternoon, and bedtime snacks as needed. Main meal at noon; at least one hot food in evening. Menus to be kept on file. Facilities of kitchen, storage area, dining area to be provided for preparation and service of adequate meals and special diets.

MAINE

Agency: State Department of Health and Welfare. *Institutions covered:* one law covers hospitals, sanitoria, convalescent and nursing homes licensed by Bureau of Health; second law covers boarding homes licensed by Bureau of Welfare. *Regulations:* food to be good quality, properly prepared, sufficient in quantity. Dietary schedule to be kept. Drinking water to be safe, to be analyzed and approved by Board of Health.

MARYLAND

Agency: State Department of Health. *Institutions covered:* any institution which maintains and operates facilities for the care and/or treatment of persons with physical or mental ailments (not boarding homes for the aged unless medical or nursing care is given, or bedfast persons cared for). *Regulations:* sufficient good quality, clean, properly prepared, palatable, and easily digestible food containing all essential constituents of a well balanced diet to be served 3 times per day. Food to be attractive, hot. Pasteurized milk recommended; if raw milk is used, source and distribution must be approved by State Department of Health. Menus to be written one week in advance. Equipment to be adequate for type of food and number of persons. Refrigeration to be adequate for storage of meats, fruits, vegetables, dairy products, other perishables. Each refrigerator to have thermometer. Storerooms to be adequate, well arranged, easily cleaned. Food containers to be properly cleaned, disinfected. Clean dishes to be properly stored, handled. Ice to be from sanitary source, handled in sanitary manner. Adequate handwashing facilities to be provided.

MASSACHUSETTS

Agency: State Department of Public Health. *Institutions covered:* many types. *Regulations:* (regulations are for different types of institutions, depending on needs of residents and types of care given; those abstracted here are for boarding homes for aged.) Food to be served attractively, hot, and uncontaminated. Tray service when needed and special diets when ordered. Meals to be of adequate quantity and quality, well balanced, and

sufficiently varied. Adequate facilities for proper storage, preparation, and serving of food, including refrigeration, dishwashing, and handwashing facilities.

MICHIGAN

Agency: State Department of Social Welfare. *Institutions covered:* privately operated homes for aged; convalescent and nursing homes. *Regulations:* food to be adequate, suitably stored, prepared, and served. Three balanced meals, suited to aged persons to be served daily at recognized meal times. Supplementary food and special diets to be provided as ordered in writing by M.D. Record of menus to be kept. Equipment and refrigeration to be adequate, well maintained. Dishes to be in good condition, properly cleaned, and sanitized by 2-min. immersion in 170°F. water, or in approved mechanical dishwasher.

MINNESOTA

Agency: State Department of Health. *Institutions covered:* hospitals, sanatoria, and rest, nursing, and boarding homes. *Regulations:* pasteurized, evaporated, condensed, or dried milk may be used. Ice to be from safe source, properly handled. Facilities to be provided for proper preparation and serving of food. Refrigeration adequate to maintain 50°F. Frozen food units to be adequate to maintain −5°-0°F. Storerooms to be clean, ventilated, to offer proper protection from contamination. Dishes and utensils to be effectively cleaned and disinfected by 2-min. immersion in 170°F. water or 15-seconds in boiling water; other methods of disinfection approved by Department. Handwashing facilities to be provided. Garbage disposal to be proper to prevent spread of contagion and growth of insects or rodents.

MISSISSIPPI

No licensing law at present.

MISSOURI

Agency: State Department of Public Health and Welfare. *Institutions covered:* private convalescent, nursing, shelter, or boarding homes caring for aged, chronically ill, or incurable persons. *Regulations:* types and amounts of food must meet individual or special dietary needs as ordered by M.D. Grade A pasteurized milk kept at 50°F. to be served from original container. Food handling to conform to code covering Eating and Drinking Establishments.

MONTANA

Agency: State Board of Health. *Institutions covered:* boarding and nursing homes for the aged (not acutely ill patients). *Regulations:* ice used in contact with food to be from approved source and handled in sanitary manner. Milk to come from licensed dairy. Adequate facilities for food preparation and service, and clean, ventilated storage space to prevent contamination of any type to be provided. Refrigeration to be adequate to maintain 50°F. or less; thermometer in refrigerator and storeroom recommended. Dishes and utensils to be cleaned and disinfected by 2-min. immersion in 170°F. water or ½-min. in boiling water; air-drying recommended. Adequate handwashing facilities to be provided.

NEBRASKA

Agencies: State Departments of Health and of Assistance and Child Welfare. *Institutions covered:* Department of Health administers law pertaining to hospitals and institutions giving medical care; Department of Assistance and Child Welfare, private homes for aged or infirm providing food, shelter, and care for compensation. *Regulations* (for private homes for aged): operators to provide nursing care and special diets as ordered by M.D. "Substantial, wholesome, nutritious" meals to be served. Unless special diet ordered, every guest to be served adequate normal diet based on Basic Seven recommended by the National Food Guide, U.S. Dept. of Agriculture. Food to be appetizing; hot foods to be served hot, cold foods cold. Meals to be served at regular times. Sufficient storage, refrigeration space to be provided. Kitchen, pantries, dining rooms to be orderly, clean, well ventilated. Dishwashing to be hygienic.

NEVADA

No licensing law at present.

NEW HAMPSHIRE

Agency: State Department of Health. *Institutions covered:* nursing, convalescent, and maternity homes and homes for aged and chronically ill. *Regulations:* meals to be adequate in quantity and quality, well balanced, and sufficiently varied. Food to be served attractively, hot, uncontaminated. Raw milk prohibited. Special diets as ordered, tray service as needed. Food storage to be adequate and clean; 50°F. or less for perishables.

NEW JERSEY

Agency: State Department of Institutions and Agencies. *Institutions covered:* private nursing homes, hospitals providing diagnosis, treatment, or care of persons suffering from illness, injury, or deformity, or where convalescent, medical, or nursing care is rendered (appears not to include homes for aged unless they need nursing care). *Regulations:* sufficient good food, properly prepared with green and yellow vegetables and fruits emphasized, unless otherwise prescribed. Foods to be simple, easily digestible, and should contain all constituents "required for good nutrition." Recommended: a hot food; heartiest meal at noon; moderate sized servings; consideration of texture; attractive trays; napkins.

NEW MEXICO

Agency: State Department of Health. *Institutions covered:* all (general law). *Regulations:* dietary department to provide for safe, efficient preparation and serving of foods and beverages to patients and employees; to be under supervision of trained dietitian or person skilled in handling, preparation, and serving of foods and supervision and management of food handlers wherever possible. If trained dietitian not employed, services of trained dietitian or nutritionist in the community, or of nutrition consultant of the Licensing Agency, to be obtained periodically to consult with personnel of dietary department on storing, preparation, and serving of food, menu planning, and special diets. Written record to be kept of menus. Food to fulfill all requirements of diet selected and prepared in accordance with nutrition standards. All milk except that used for cooking to be Grade A pasteurized, served from original container. Food handling procedures to conform to regulations covering sanitation of Foods and Food Handling Establishments. Employees to wash hands after use of toilet. Bottles and dishes used by ill persons to be washed and sanitized before going to general dishwashing area.

NEW YORK

No licensing law, but State Board of Social Welfare supervises and inspects "matters directly affecting the health, safety, treatment, and training of . . . inmates (of institutions)."

NORTH CAROLINA

Agency: State Department of Public Welfare. *Institutions covered:* homes giving domiciliary care; does not include homes or institutions giving medical care or diagnostic services—only those which care for persons receiving services from County Welfare Department. *Regulations:* "adequate and proper diet with due regard for the individual tastes and needs of the resident shall be provided."

NORTH DAKOTA

Agency: State Public Welfare Board. *Institutions covered:* boarding homes for aged and infirm; any home or institution not licensed by State Board of Health. *Regulations:* planned diet to include right kinds of food to be served. Milk, eggs, meats, fruits, vegetables, and whole grain cereals to make up bulk of diet. Mealtimes to be regular; food to be tempting and appetizing. Milk to be from approved source. Food to be properly stored. Dishes and utensils to be sanitized by 2-min. immersion in 170°F. water, ½-min. in boiling water, or in solution of at least 50 p.p.m. free chlorine. Dishes to be handled and stored in sanitary manner.

OHIO

Agency: State Department of Public Welfare. *Institutions covered:* rest, convalescent, and boarding homes for aged and physically infirm. *Regulations:* local ordinances on food handling apply. If no local ordinance, following shall apply: food and drink to be clean, wholesome, free from spoilage, and prepared to be safe for human consumption. Food to conform to U.S. Dept. of Agriculture Nutritional Standards for Sedentary or Incapacitated. Milk to be Grade A pasteurized if available; if not, source of milk to be approved by district health commissioner. At least 3 meals per day to be served at regular hours. Floors to be easily cleaned and kept clean; walls and ceilings to be smooth, washable, clean; openings into outer air to be screened; 10 ft. candles light to be provided at all working areas; all rooms to be well ventilated. Perishables to be kept at 50°F. or lower. All utensils and equipment to be easily cleaned, kept clean. Dishes to be washed, sanitized in 3-compartment sinks with water at 170°F. or in chlorine solution of 50 p.p.m. Toilet and lavatory facilities to be provided.

OKLAHOMA

Agencies: State Departments of Health and of Public Welfare. *Institutions covered:* Department of Health administers law pertaining to hospitals, nursing homes, chronic and convalescent homes; Department of Public Welfare, "retreats," rescue homes, and rest homes primarily for aged indigent persons. *Regulations* (for homes for aged): adequate, good, properly prepared

food to be served at 3 meals daily, with ample time for eating and social contacts. Milk to meet specifications of State Department of Health. Diet to be simple, easily digested, of suitable texture (daily foods listed). Menus to be recorded and filed. Special diets as ordered by M.D. Meals to be served at tables unless illness prevents, main meal being at noon; at least one hot food in evening. Reasonable adjustments to be made for personal tastes. Adequate supply of drinking water and individual cups to be provided. Food to be protected from flies, vermin, germs.

OREGON

Agency: State Board of Health. *Institutions covered:* homes or institutions for the board or care of persons of advanced age, not licensed under hospital act. *Regulations:* sufficient quantity and variety of foods. Raw milk prohibited. Ice to be from satisfactory source, handled in sanitary manner. Dishes and glassware to be cleaned and disinfected by 2-min. immersion in 170°F. water, ½-min. in boiling water, or 2-min. in chlorine solution of 50 p.p.m. Dishes to be handled and stored in sanitary manner.

PENNSYLVANIA

Agency: Department of Welfare. *Institutions covered:* private homes or hospitals operating for profit, which care for aged, senile, chronically ill, or convalescent persons. *Regulations:* no mention made of food or food sanitation.

RHODE ISLAND

Agency: State Department of Social Welfare. *Institutions covered:* homes for aged or convalescent persons. *Regulations:* special consideration to be given to diets which should meet requirements of individual patients. Daily records to be kept for departmental inspection.

SOUTH CAROLINA

No licensing law covering homes for aged and infirm persons.

SOUTH DAKOTA

Agency: State Department of Health. *Institutions covered:* hospitals, sanatoria, rest homes, nursing homes, boarding homes, and related institutions if nursing care is given. *Regulations:* "reasonable standards" to be set up by State Board of Health, not yet available.

TENNESSEE

Agency: State Public Health Council. *Institutions covered:* hospitals (term includes any type of institution willing and able to furnish care for persons with any condition needing nursing, medical, or surgical services. Appears not to include homes for aged unless some type of nursing care is given.) *Regulations:* only Grade A pasteurized milk may be used; if not available, dried or evaporated milk to be used. Ice to be from satisfactory source, handled in sanitary manner. Facilities for proper preparation and serving of food to be provided. Storerooms to be clean, ventilated, for proper protection of food. Scrupulous cleanliness of kitchens, storerooms, utensils, meat blocks, shelves and hooks, etc., always to be maintained. Refrigeration to be adequate to maintain 50°F. Dishes and utensils to be properly cleansed and disinfected by 2-min. immersion in 170°F. water, ½-min. in boiling water, or 2-min. in chlorine solution of at least 50 p.p.m. Handwashing facilities to be provided in kitchens, diet kitchens, washrooms.

TEXAS

Agency: State Department of Health. *Institutions covered:* convalescent homes; any place or establishment where 3 or more pension or old age recipients are housed for hire or profit. *Regulations:* those applying to public eating establishments to be followed. Ample quantity of wholesome, properly prepared food to be furnished all inmates. Special diets to be furnished under direction of M.D. or qualified graduate dietitian and based on diagnosis of M.D. Milk and meat to be from approved sources. Safe water supply to be provided. Adequate facilities to be available for proper preparation, serving, storage, and refrigeration of food in sanitary manner. No medicines, drugs, serums, etc., to be kept in same refrigerators or storage cabinets with food. Dishes to be washed and effectively sanitized in compliance with regulations. Garbage handling and disposal facilities to be provided. Home to be kept vermin-free.

UTAH

Agency: State Department of Health. *Institutions covered:* hospitals, but term includes all types of institutions giving nursing, medical, or convalescent care, and homes for aged and needy. *Regulations:* dietary department to be under trained dietitian or person skilled in selection, preparation, serving of foods and in supervision and management of food handlers, familiar with nutritional values and requirements of normal diet and with psychologic aspects of food. If qualified dietitian not employed, services of trained dietitian or nutritionist in the community, or of nutrition consultant of State Department of Health to be obtained periodically. Dietitian to initiate policies and procedures for dietary department, provide for administrative and technical guidance of food handlers. Food for patients and employees to be selected and prepared to meet nutritional standards. Suggestions: menus prepared at least 1 week in advance, retained for at least 1 month; frequent survey of food on hand and quantity purchasing; frequent observance of food waste and investigation of cause. Pasteurized milk to be used; if not available, condensed, evaporated, or dried milk. Ice to be from satisfactory source, dispensed in sanitary manner. Personnel and facilities to be adequate for safe and efficient preparation and service of food and beverages. Food sanitation to comply with Sanitary Code for Eating and Drinking Establishments. Food storage facilities to be clean, ventilated, protected, kept at proper temperature. Refrigeration to be adequate to maintain 50°F., with thermometer for each refrigerator and storeroom. Dishes to be properly cleansed and disinfected by 2-min. immersion in 170°F. water, ½-min. in boiling water, or 2-min. in chlorine solution of 50 p.p.m. Clean dishes to be handled, stored properly. Glass-filling devices to be such that upper ¼ of glass does not touch device. Adequate handwashing facilities to be convenient.

VERMONT

Information was not available.

VIRGINIA

Agencies: State Departments of Health and of Welfare and Institutions. *Institutions covered:* Department of Health administers law pertaining to institutions giving nursing and/or medical care; Department of Welfare and Institutions, homes for aged, infirm, chronically ill, or incapacitated persons. *Regulations* (for homes for aged): food to provide well balanced, properly cooked meals, to be served 3 times per day. Adequate amounts of milk, eggs, green and yellow vegetables, and citrus and other fruits to be served. Meat, fowl, or fish to be served daily and must be served minimum of 3 separate days each week. Special diets as ordered by M.D. or as contracted for in advance. Milk supply to be approved by Health Department. Trays, dishes, silverware, linens to provide attractive food service.

WASHINGTON

Agency: State Department of Social Security (sets standards, but County Commissioners enforce licensing if local option is adopted). *Institutions covered:* "places of refuge," hospitals, asylums, alms houses, homes for aged and infirm. If nursing homes care for recipients of public assistance, they must be licensed. *Regulations:* food to be warm, sanitary, attractive. Special diets as ordered. Three meals a day to be served. Table linens to be freshly laundered. Food to be prepared, handled, distributed in accordance with rules of State Board of Health.

WEST VIRGINIA

Agency: State Department of Health. *Institutions covered:* hospitals and other institutions providing care for convalescent or infirm persons; homes for aged included only if chronic or convalescent care is given. *Regulations:* no food to be served unless prepared on the premises or in establishment approved by State Department of Health. Foods served raw to be thoroughly washed. Milk to be from source approved by State Department of Health. Ice to be from approved source, handled in sanitary manner. "It is desirable that a full-time dietician, who meets the qualifications for membership in the American Dietetic Association, be employed and that the fullest use be made of modern concepts of optimal nutrition." Food to be handled, prepared, served under clean and sanitary conditions. Displayed foods to be protected from contamination. Refrigeration to be maintained at 50°F. Dishes and utensils to be effectively cleaned and disinfected by ½-min. immersion in 170°F. water or 2-min. in chlorine solution of 50 p.p.m. Dishes to be handled in sanitary manner, kept in closed cupboard.

WISCONSIN

No statewide licensing law covering homes for the aged or nursing homes.

WYOMING

No licensing law covering hospitals or homes for aged or infirm persons.

The word "cereal" was derived from the name of the Roman goddess of vegetation, Ceres.

Utilization of Nitrogen, Phosphorus, Calcium, and Iron by Men on Different Breakfasts[1]

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IN THE course of an experiment studying certain physiologic responses (1) of young men on a good diet in which the type of breakfast varied, data were collected on the utilization of nitrogen, phosphorus, calcium, iron, thiamine, and niacin. The data relative to thiamine and niacin have been reported (2). This paper reports the data on nitrogen, phosphorus, calcium, and iron.

The subjects were ten male students varying in age from twenty-one to thirty-five years at the State University of Iowa. Physical examinations showed that they were in excellent physical condition and, with the exception of two who were somewhat overweight, conformed to average height and weight standards. During the investigation they carried full academic schedules, but did not participate in any sport which demanded unusual physical exertion.

PROCEDURE

The general procedure followed and the diets used in this study which covered two ten-week periods have been described (1, 2). The dietary regimen for the subjects varied in the type of breakfast which furnished one-fourth of the day's total protein and calories. Cereal and milk furnished the protein in the cereal breakfast period, while bacon, egg, and milk furnished the protein in the bacon and egg breakfast period. All subjects ate the same noon and evening meals, but at breakfast the group was divided into two sub-groups of five each. While half were given bacon and eggs, the other five ate the cereal breakfast. The groups were then rotated.

After four to six weeks on the weighed diets, collection of urine was made for three weeks and of stools for the second week of this period. Food analyses were made throughout these periods.

Standard methods of chemical analyses for nitrogen, creatinine, phosphorus, and calcium were used (3–5). Iron was determined by the *o*-phenanthroline method of Fortune and Mellon (6). Urinary creatinine was determined daily. Red blood cell counts and hematocrit and hemoglobin values[3] were obtained for each subject during each collection period.

In Table 1 are given the initial and final weights of the subjects with their average daily consumption of calories and protein. The protein intakes reflected the food choice of each subject, and the calories showed the usual variations required to maintain weight in different individuals. One subject desired and needed to lose weight, while another held his weight on 2200 calories. The nitrogen intake varied from 1.2 to 1.6 gm. per kilogram of body weight.

[1] This work was generously supported by a research grant from the Cereal Institute, Inc., Chicago. Received for publication March 21, 1951.

[2] Submitted in partial fulfillment of the requirements for the degree of Master of Science, Department of Nutrition, Graduate College.

[3] Through the courtesy of Dr. A. P. Barer, Research Associate, Department of Internal Medicine.

TABLE 1

Weight changes and dietary intake

SUBJECT	INITIAL WEIGHT	FINAL WEIGHT	WEIGHT CHANGE	AVERAGE PROTEIN INTAKE	AVERAGE CALORIC INTAKE
	lb.	*lb.*	*lb.*	*gm.*	
O.E.*	175.5	168.0	−7.5	99	2277
W.F.	162.5	162.0	−0.5	103	3009
G.H.	169.0	173.0	+4.0	121	3586
C.J.	170.0	168.0	−2.0	100	3020
T.L.	149.0	151.0	+2.0	104	3000
F.N.	180.5	179.0	−1.5	99	3000
T.W.	184.0	183.0	−1.0	126	3614
L.W.	142.0	141.5	−0.5	101	2734
M.W.*	182.0	179.0	−3.0	98	2277†
N.Z.	148.5	148.0	−0.5	99	2656

* Loss by this subject was planned.

† Low caloric intake in order to hold initial weight.

TABLE 2

Daily average nitrogen intake and excretion

SUBJECT	NITROGEN INTAKE	NITROGEN OUTPUT		
		Urinary	Fecal	Balance
Cereal Breakfast Period				
	gm.	*gm.*	*gm.*	*gm.*
O.E.	15.8	14.1	2.2	−0.5
W.F.	16.2	13.6	1.8	0.8
G.H.	19.3	16.8	2.3	0.2
C.J.	16.3	14.5	1.2	0.6
T.L.	16.6	13.7	1.8	1.1
F.N.	15.8	13.9	1.7	0.2
T.W.	20.1	14.6	1.4	4.1
L.W.	16.1	13.9	2.0	0.2
M.W.	15.6	14.4	0.9	0.3
N.Z.	15.8	13.1	0.9	1.8
Average	16.7	14.3	1.6	1.0*
Bacon and Egg Breakfast Period				
O.E.	14.7	13.7	1.5	−0.5
W.F.	16.4	13.9	1.4	1.1
G.H.	20.6	15.9	1.9	2.8
C.J.	16.0	14.0	1.4	0.6
T.L.	16.1	14.4	1.2	0.5
F.N.	16.1	13.6	2.0	0.5
T.W.	21.9	16.5	1.8	3.6
L.W.	15.7	13.7	1.8	0.2
M.W.	15.5	14.0	1.4	0.1
N.Z.	18.8	16.2	0.8	1.8
Average	17.8	14.6	1.5	1.2†

* Standard deviation, 1.14.

† Standard deviation, 1.13.

TABLE 3

Daily average phosphorus intake and excretion

SUBJECT	PHOSPHORUS INTAKE	PHOSPHORUS OUTPUT		
		Urinary	Fecal	Balance
Cereal Breakfast Period				
	gm.	*gm.*	*gm.*	*gm*
O.E.	1.860	0.930	0.815	0.115
W.F.	1.903	1.030	0.524	0.349
G.H.	2.459	1.017	1.405	0.032
C.J.	1.820	0.915	0.697	0.208
T.L.	1.917	1.061	0.711	0.145
F.N.	1.853	0.983	0.542	0.298
T.W.	2.441	1.070	1.196	0.175
L.W.	1.903	1.050	0.931	0.078
M.W.	1.860	0.918	0.568	0.374
N.Z.	1.601	0.902	0.499	0.200
Average	1.962	0.988	0.789	0.197*
Bacon and Egg Breakfast Period				
O.E.	1.575	0.888	0.743	−0.056
W.F.	1.756	1.005	0.589	0.158
G.H.	2.341	1.274	0.660	0.417
C.J.	1.803	1.013	0.669	0.121
T.L.	1.753	0.883	0.732	0.138
F.N.	1.765	0.894	0.567	0.304
T.W.	2.140	0.956	0.746	0.438
L.W.	1.650	0.987	0.587	0.077
M.W.	1.578	0.753	0.555	0.270
N.Z.	1.547	0.955	0.787	0.205
Average	1.789	0.958	0.634	0.218†

* Standard deviation, .113.

† Standard deviation, .135.

RESULTS

Nitrogen Excretion

The average daily nitrogen intake and excretion figures are given in Table 2. All except one (O.E.) of the subjects were in positive balance throughout both periods. A number of the subjects showed larger than normal fecal loss in both periods, but with the exception of O.E., whose stool was bulky and foul smelling, no other stools were abnormal in any gross way. O.E. was still in negative balance during the period on eggs and bacon although the nitrogen in the stool was within normal limits. He lost 7½ lb. during the experiment, but the loss was very gradual.

The average positive nitrogen balance for the group during the cereal breakfast period was 1.0 gm. and during the bacon and egg period, 1.3. During the cereal breakfast period, the range was from 0.1 to 4.3 gm., and during the bacon and egg breakfast period, 0.1 to 3.6 gm. Few studies on normal subjects report such satisfactory balances chiefly because of considerably lower intakes. However, Mitchell (7) found an average retention of 1.379 gm. in a group of young men eating 84.1 gm. protein daily over a period of 205 days. He suggested that if allowance was made for dermal loss estimated at 360 mg. daily, the retention of 1 gm. nitrogen and 174 mg. phosphorus may be used for adult growth. There was significant correlation between the retentions and the surface area of the subjects in his study. His subjects did not show appreciable weight changes.

In the experiment reported here, only four of the subjects showed appreciable retention values, and if 360 mg. dermal loss, as suggested by Mitchell, were subtracted, the retentions would be quite different.

Calcium and Phosphorus Balance

All subjects with one exception (O.E.) were in positive phosphorus balance during both dietary periods (Table 3). The range varied from 0.032 to 0.374 gm. during the cereal breakfast period and from 0.077 to 0.438 gm. during the bacon and egg period, with averages of 0.197 and 0.218 gm. respectively for the two periods.

Calcium retention was also positive during both periods except for one subject (G.H.) during the cereal breakfast period (Table 4), who showed a low

TABLE 4

Average daily calcium intake and excretion

SUBJECT	CALCIUM INTAKE	CALCIUM OUTPUT		
		Urinary	Fecal	Balance
Cereal Breakfast Period				
	gm.	*gm.*	*gm.*	*gm.*
O.E.	1.588	0.253	1.125	0.210
W.F.	1.801	0.258	1.358	0.185
G.H.	2.279	0.254	2.121	−0.096
C.J.	1.823	0.272	1.175	0.376
T.L.	1.752	0.314	1.192	0.246
F.N.	1.848	0.304	1.326	0.218
T.W.	2.370	0.215	2.052	0.103
L.W.	1.801	0.264	1.444	0.091
M.W.	1.583	0.271	0.947	0.365
N.Z.	1.750	0.313	1.042	0.395
Average.....	1.859	0.272	1.378	0.228*
Bacon and Egg Breakfast Period				
O.E.	1.430	0.246	1.156	0.028
W.F.	1.467	0.293	1.030	0.136
G.H.	2.199	0.239	1.680	0.280
C.J.	1.467	0.290	1.012	0.165
T.L.	1.532	0.314	1.013	0.205
F.N.	1.501	0.337	1.085	0.079
T.W.	2.030	0.276	1.273	0.481
L.W.	1.545	0.263	1.116	0.166
M.W.	1.430	0.281	0.807	0.342
N.Z.	1.440	0.266	1.032	0.142
Average.....	1.604	0.281	1.120	0.202†

* Standard deviation, .117.
† Standard deviation, .113.

TABLE 5

Average daily iron intake and excretion

SUBJECT	IRON INTAKE	IRON OUTPUT		
		Urinary	Fecal	Balance
Cereal Breakfast Period				
	mg.	*mg.*	*mg.*	*mg.*
O.E.	13.53	0.53	12.85	0.68
W.F.	14.83	0.42	6.16	8.25
G.H.	16.47	0.45	8.90	7.12
C.J.	17.70	0.57	8.43	8.71
T.L.	15.29	0.44	11.26	6.90
F.N.	18.37	0.77	10.69	6.91
T.W.	16.78	0.58	11.90	4.30
L.W.	14.80	0.54	9.32	4.94
M.W.	13.53	0.57	6.79	5.81
N.Z.	14.67	0.62	5.54	8.51
Average.....	15.59	0.55	9.18	6.21*
Bacon and Egg Breakfast Period				
O.E.	15.90	0.53	9.34	6.02
W.F.	16.17	0.44	5.94	9.79
G.H.	17.70	0.46	10.68	6.56
C.J.	14.69	0.62	7.17	6.90
T.L.	15.73	0.45	10.50	4.77
F.N.	15.57	0.72	7.73	7.12
T.W.	16.61	0.63	14.57	1.33
L.W.	14.18	0.56	7.81	5.81
M.W.	15.90	0.63	9.46	5.81
N.Z.	14.98	0.57	4.56	9.85
Average.....	15.76	0.56	8.78	6.39†

* Standard deviation, 2.4.
† Standard deviation, 2.4.

phosphorus retention and a high fecal excretion of both calcium and phosphorus.

The urinary excretion of calcium in all of the subjects fell within a narrow range with averages of 0.272 gm. for the cereal, and 0.281 gm. for the bacon and egg breakfast period.

The relationship between the calcium and phosphorus is suggestive of deposition in the bony structures and teeth rather than as a contribution to growth of tissues.

Intakes of calcium and phosphorus during both dietary periods were large.

Iron Utilization

Intakes of iron for all subjects during both dietary periods were large and quite constant (Table 5): 15.60 mg. during the cereal period and 15.76 mg. during the bacon and egg breakfast period.

The urinary excretion of iron as reported by various workers is summarized in Table 6. Barer and Fowler (8), from very extensive studies in this institution, gave an average of 0.326 mg. and stated that the excretion in a given subject on a controlled intake is very constant. The urinary excretion of iron for all individuals in the present study fell within the ranges reported by those authors, and individual patterns were the same in the two periods.

The average retention of iron during the cereal breakfast period was 6.23 mg., with a range from 0.68 to 8.51 mg. The average retention during the bacon and egg breakfast period was 6.39 mg., with a range from 1.33 to 9.85 mg. The iron balances were larger than those reported elsewhere, but no reports were found covering such liberal intakes in men for any considerable period. Bassett *et al.* (9) reported retentions of 6.4 and 8.2 mg. by one subject on intakes of 28.6 and 22.0 mg. during three-day periods.

Blood Readings

Hemoglobin, red cell, and hematocrit readings are given in Table 7. All subjects but one showed decreases of various degrees in these values during February and March when upper respiratory infections were wide spread on this campus. In Column 7, Table 7 are given the iron balances, but single values of the blood changes for a given period were insufficient to warrant any conclusion.

TABLE 6

Summary of other investigations of urinary iron excretion by normal males

DATE	INVESTIGATORS	DAILY URINARY IRON OUTPUT
		mg.
1937	Barer and Fowler (8)	0.395
1932	Bassett, Elden, and McCann (9)	tr. −1.0
1897	Stockman and Grieg (10)	0.66–1.26
1907	Sherman (11)	0.2
1937	Widdowson and McCance (12)	0.4
1934	Reznikoff, Toscani, and Fullarton (13)	0.2–0.62
1934	Hanzal and Bing (14)	(0.02/liter)
1934	Marlow and Taylor (15)	0.06–0.8
1935	Farrar and Goldhamer (16)	(0.02–0.03/100 cc.)
1945	Little, Power, and Wakefield (17)	0.045–0.2

The method of Fortune and Mellon (6) has been used in this laboratory for several years with consistent results when applied to pure iron solutions, food, and fecal digests.

All diets were analyzed for approximately three and one-half months. The differences between the calculated and analyzed figures for iron content varied from 0.56 to 2.19 mg. Widdowson and McCance (18) reported a range of 2 to 17 mg. difference for a week's values on a mixed diet, but Young and McHenry (19) found little difference when a large number of meals were analyzed.

SUMMARY

Ten college men ate an adequate diet for two, ten-week periods in which they ate cereal breakfasts during one period and bacon and egg breakfasts during the other. The periods were reversed so that each subject served as his own control.

Nitrogen, phosphorus, calcium, and iron utilization were followed during these periods. The average daily intake of nitrogen was 16.8 gm. during the cereal breakfast period and 17.2 gm. during the bacon and egg breakfast period.

All subjects except one were in positive nitrogen balance during both periods, with average retentions of 1.0 and 1.3 gm. for the cereal and bacon and egg breakfast periods respectively. The lowest positive retention was 0.1 gm. in each period, and the highest was 4.1 gm. in the cereal breakfast period.

All subjects showed positive phosphorus retention in the cereal breakfast period, but one showed a slight negative balance in the bacon and egg breakfast period.

All subjects except one were in positive calcium balance in both periods with an average positive retention of 0.219 gm. in the cereal period and 0.202 gm. in the bacon and egg breakfast period.

Iron retention was positive throughout for all subjects, and of an unusual magnitude. The daily average value during the cereal breakfast period was 6.23 mg.; during the bacon and egg breakfast period, it was 6.39 gm. The range was 0.68 to 8.71 mg. during the cereal period and 1.33 to 9.85 gm. in the bacon and egg period.

There were no significant differences in the retentions

TABLE 7

Summary of blood examination studies

SUBJECT	DATE	RED BLOOD CELLS	HEMATOCRIT	HEMOGLOBIN	COMMENT	IRON RETENTION
			%	*gm./100 cc.*		*mg.*
O.E.	11/25/49	4425000	40.0	13.986		0.68
	12/8/49	4655000	41.0	13.860		
	3/13/50	4760000	41.0	12.033	Head cold, 3/11	6.02
W.F.	10/21/49	5330000	47.0	13.230		9.79
	11/8/49	5395000	47.0	13.356		
	12/6/49	5015000	46.0	12.978		
	3/1/50	4520000	41.0	11.340	Not as much rest as first semester	
	3/8/50	—	—	11.655		4.30
G.H.	11/29/49	4785000	46.5	14.994		7.12
	12/6/49	4925000	48.0	14.742		
	3/11/50	4860000	45.0	13.860	Cold, 3/7–3/11	6.56
C.J.	11/7/49	5895000	45.0	15.482		6.90
	11/25/49	5385000	43.0	15.372		
	12/5/49	5600000	46.0	14.868		
	3/10/50	4200000	41.0	12.978	Recovering from "flu"	8.71
T.L.	10/21/49	5245000	45.0	13.860		3.59
	11/8/49	5260000	45.0	13.104		
	12/13/49	5485000	47.0	14.238		
	3/4/50	5060000	46.0	13.734		4.79
F.N.	11/8/49	5020000	43.0	14.238		7.12
	11/22/49	5365000	43.5	15.120		
	12/2/49	5080000	45.0	14.112		
	2/28/50	5070000	45.0	13.908		
	3/9/50	4950000	44.0	13.356		6.91
T.W.	11/9/49	5450000	45.5	14.364		1.33
	11/25/49	5400000	46.0	14.616		
	12/14/49	5650000	48.0	15.246		
L.W.	11/7/49	6250000	50.0	16.002		5.81
	11/21/49	6210000	48.0	15.120		
	12/5/49	6370000	50.0	15.624		
	2/27/50	4935000	46.0	13.786	Head cold,	
	3/7/50	—	—	14.238	2/24–2/28	4.94
M.W.	11/21/49	4895000	42.0	14.490		6.02
	12/5/49	4795000	42.0	13.230		
	3/2/50	4850000	43.0	12.222	"Flu," 3/5–	
	3/9/50	—	—	13.734	3/7	5.81
N.Z.	11/11/49	5295000	46.0	15.120		8.51
	11/25/49	4995000	45.0	15.372		
	12/2/49	5235000	46.0	15.120		
	3/3/50	5000000	46.0	12.852	Severe cold	
	3/9/50	—	—	14.994		9.85

of nitrogen, phosphorus, calcium, and iron between the periods when the subjects ate a cereal breakfast and when they ate a bacon and egg breakfast.

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BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

Max Rubner—June 2, 1854—April 27, 1932

Any study of the development of the science of nutrition inevitably means the study of the great contributions of Max Rubner. It was Rubner who introduced the term "specific dynamic action of foodstuffs" and made extensive measurements of this function. He verified the law of conservation of energy, showing that it holds true for man. He established the law of surface area in basal metabolism, the isodynamic law of foodstuffs, and the law of constant energy expenditure. He developed animal calorimetric studies, and gave us the caloric values, 4.1, 9.3, and 4.1, which have for so many years been standard for dietary calculations, but which are now being replaced by more specific values for individual foods.

Max Rubner was born in Munich, June 2, 1854, and received his early scientific training in that city under Carl Voit. When only thirty-one, Rubner became a full professor at Marburg, where he was appointed to the newly established chair of hygiene. There he continued the energy studies begun in Voit's laboratory. In 1891, he succeeded Robert Koch as Professor of Hygiene at Berlin, and in 1909 became Professor of Physiology at that institution.

Rubner's investigations were also concerned with protein foods and their digestibility; he advocated high-protein diets, recommending 127 gm. protein for a laborer and 165 gm. for men doing hard work. His studies on the digestibility of cereal and vegetable foods were outstanding; and municipal food statistics and hospital dietaries were also of interest to him. His hobby of collecting old dinner menu cards aroused his interest in changing food habits. His investigative mind was active wherever he went; for twenty-five years he carried a pedometer and recorded his steps and the curve of lessening activity with advancing years.

He displayed the ability that marks the great research worker, the ability to plan and correctly interpret experiments which demonstrated fundamental truths. Lusk and Atwater were his friends from the days they had studied in Voit's laboratory, and Karl Thomas was one of his pupils. Rubner was a tall, well-built man of striking appearance, and photographs show him as a distinguished looking man with thoughtful expression and a long, pointed beard. He found relaxation in painting.

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Further Studies of Obese Young Women During Weight Reduction

Calcium, Phosphorus, and Nitrogen Metabolism[1]

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THERE is growing recognition that obesity can be dangerous, but ill-conducted weight reduction can also be dangerous.

Maintaining the nutritional well-being of the young obese woman during weight reduction appears to involve more than successfully restricting calories without decreasing other nutritive values of the diet. There is evidence from the studies by Brown *et al.* (1) and Leverton and Rhodes (2) that restriction of caloric intake of young obese women alters their metabolism of calcium, phosphorus, and nitrogen so that the retentions of these nutrients are less than when caloric intake is adequate.

There is a tendency in the field of popular nutrition to try to guarantee the success of reducing diets by making them glamorous to the point of being bizarre or sensational. This often results in diets which are inadequate or distorted in nutritive content and exorbitant in cost. Also, they contribute nothing toward the development of food habits which will maintain the subject's normal weight and good nutriture.

It is now recognized that personality conflicts probably constitute the greatest barriers to weight reduction and that neither a sane nor a sensational diet can be counted upon to surmount them. When the emotional causes of obesity are removed or controlled, the subject is motivated toward a sensible reduction of food intake. Only then is there need for a conservative low-calorie diet of usual foods which will fit into the framework of ordinary meal patterns.

The study was planned to investigate further the calcium, phosphorus, and nitrogen metabolism of obese young women during weight reduction on a diet which was nutritionally adequate in every respect except calories, which was moderate in cost, and which contained bread in every meal.

The idea that certain foods of high carbohydrate content are "fattening" *per se* and thus should be eliminated from the diet entirely is, unfortunately, widespread. Such foods as bread, potatoes, cereals, and many other foods are commonly included in this category in the lay mind. Actually, the deposition of fat, except in fairly rare cases, depends on the total caloric intake in relation to the caloric need rather than on the intake of any one food. The omission of such reputedly "fattening" foods from a reducing diet, especially, can greatly handicap the menu planner, both as to variety and cost. This is particularly true when it is necessary to prepare "carried" or "packed" lunches, which customarily include sandwiches. Such omissions also make food budgeting difficult. Since most of these foods are in the lower cost bracket, their omission may force the housewife to include a larger percentage of high-priced foods, thus increasing the cost of the diet. An additional purpose of the present study was, therefore, to obtain concrete evidence on the possibility of planning an effective reducing diet at moderate cost by use of such foods. To this end enriched bread was included with each meal of the reducing diet.

PROCEDURE

Twelve young women ranging in age from eighteen to twenty-five years and from 20 to 83 lb. overweight volunteered to be subjects for the study which was made during the summer of 1949. They lived in a small dormitory where several nutritional research studies were being conducted concurrently and which was staffed by research personnel.

Results of determinations of basal metabolic rate

[1] Published with the approval of the Director as paper No. 514, Journal Series, Nebraska Agricultural Experiment Station. This study was supported in part by a grant from the Wheat Flour Institute of the Millers' National Federation. Milk used in the diet was contributed by Roberts Dairy Company. Presented at the 33rd Annual Meeting of The American Dietetic Association in Washington, D. C., on October 20, 1950.

The authors acknowledge the splendid assistance of Marilyn Chaloupka, Marcella Hunt, Ruth Peters, and Ethel Diedricksen, and the cooperation of the subjects.

at the beginning, during, and at the end of the period of weight reduction ranged from +7 to −10 per cent with a mean of −4 per cent, according to the Boothby-Sandiford standards. These figures indicated that none of the subjects could attribute their obesity to abnormally low basal metabolic rates.

The fifty-four days of the study were divided into three, eighteen-day periods designated as *A*, *B*, and *C*. To facilitate rigid control of the amount and kinds of food, a dietary plan of usual foods was made for a three-day period, and this plan was repeated eighteen times. The kind and amount of food used in this three-day period are shown in Table 1. The mean daily nutritive intake was as follows: 1200 calories, 63 gm. protein, 40 gm. fat, 1.11 gm. calcium, 1.20 mg. phosphorus, 12 mg. iron, 5000 I.U. vitamin A, 1.3 mg. thiamine, 2.1 mg. riboflavin, 10 mg. niacin, and 140 mg. ascorbic acid which met the recommended allowances of the Food and Nutrition Board of the National Research Council (3) except for protein and calories. The cost of the diet was 68 cents per person per day based on prices in Chicago in the spring of 1950.

Because of the current interest in the influence of the distribution of animal protein among the daily meals on nitrogen utilization, the distribution of the milk protein was varied. During Periods *A* and *C*, there was no animal protein in the noon meal except the milk solids in the 46 gm. enriched bread. The breakfasts during these periods contained 240 gm. skim milk and the dinners, 440 gm. skim milk. During Period *B*, half of the 440 gm. milk served in the evening during Periods *A* and *C* was transferred to the noon meal. Thus, during Period *B*, animal protein from milk was provided in each meal, although the total amount or kind of protein did not differ from that of the other periods.

During the second nine days of each of the three periods, a metabolism study was conducted. Composites of weighed portions of all the food served at each meal were made. Thus, twenty-seven meal composites for each nine-day metabolism period were analyzed. Stools for each subject for each nine-day period were marked with carmine. Urine collections for each subject during each 24-hr. period were combined according to the time of voiding as previously described by Leverton and Gram (4), which resulted in four different samples or composites for each day for each subject. Food and fecal composites were made into hydrochloric acid digests. Nitrogen was determined by the macro-Kjeldahl method, calcium by the McCrudden method as modified by Stearns (5), and phosphorus by the method of Fiske and Subbarow (6).

RESULTS

In Table 2 are shown the age, height, weight, and the amount overweight of each subject at the begin-

TABLE 1

Kind and amount of food for each day of the three-day periods (Period B)

MEAL	FOOD	WEIGHT*
	First Day	
		gm.
Breakfast	Orange juice	120
	Bread†	23
	Butter	3
	Egg	50
	Milk‡	240
Lunch	Bread	46
	Butter	3
	Tomato	75
	Apple	100
	Milk§	220
Dinner	Cube steak	110
	Potato	75
	Lettuce	75
	Dinner roll	30
	Butter	3
	Cantaloupe	150
	or sherbet	100
	Milk	220
	Second Day	
Breakfast	Grapefruit juice	120
	Bread	23
	Butter	3
	Egg	50
	Milk	240
Lunch	Bread	46
	Butter	3
	Carrot	45
	Orange	100
	Milk	220
Dinner	Lean pork chop	110
	Apple	50
	Vegetable salad	75
	Bread	23
	Butter	3
	Strawberries	150
	Milk	220
	Third Day	
Breakfast	Orange juice	120
	Bread	23
	Butter	3
	Egg	50
	Milk	240
Lunch	Bread	46
	Butter	3
	Jelly	18
	Celery	20
	Milk	220
Dinner	Ground beef	135
	Potato chips	10
	Tomato	100
	Dill pickle	60
	Bun	45
	Butter	3
	Hard candy	13
	Milk	220

* All weights were edible portion.
† All bread was enriched white.
‡ All milk was skim and contained only .02% fat.
§ In Periods *A* and *C*, this amount of milk was omitted from lunch and added to the dinner.

ning of the study, together with the weight loss during the low-calorie regimen. The weight loss varied from 14 to 22 lb. and averaged 19.2 lb. per subject for the fifty-four-day period, or 2.5 lb. per week.

Results of repeated basal metabolic tests and hemoglobin determinations showed no changes during the experimental period.

TABLE 2

Age, height, weight, and weight loss of each subject

SUBJECT	AGE	HEIGHT	WEIGHT AT START OF STUDY	OVER-WEIGHT*	WEIGHT LOSS
	yr.	*in.*	*lb.*	*lb.*	*lb.*
1	18	64.7	150	24	16
2	18	64.7	175	49	20
3	19	65.5	177	47	22
4	18	64.0	206	83	22
5	18	66.0	184	54	20
6	19	64.5	180	54	22
7	19	61.0	145	29	14
8	18	66.7	210	75	22
9	18	63.0	162	42	20
10	18	64.0	165	42	19
11	25	65.3	162	31	19
12	20	65.0	147	20	14
Mean.....	19	64.5	172	45.8	19.2

* MacLeod and Taylor (7).

In Table 3 are given the means and the standard deviations of the intake, excretion, and retention of calcium, phosphorus, and nitrogen for all subjects for each nine-day period and for all subjects for all periods. The mean retentions or losses of all three nutrients for each period were less than 10 per cent of their respective intakes.

Despite controlled conditions of diet, the carmine which is given to mark the stools is subject to unrecordable vagaries of the intestinal tract. Thus, a fecal composite may not represent accurately the intake supposedly marked. Figures for calcium metabolism are influenced the most by the accuracy of the fecal composite, because about three-fourths of the total excretion of calcium is present in the feces. Figures for nitrogen metabolism are affected the least because only about one-eighth of the nitrogen is excreted in the feces. Because of this inherent factor, it is the practice of the authors to attach no significance to retentions or losses of calcium or phosphorus which are less than 10 per cent of the intake or to retentions or losses of nitrogen which are less than 5 per cent of the intake. The differences between the mean intake, excretion, and retention of calcium and phosphorus for each period were not significant.

For nitrogen, the mean retention rose from 0.21 gm. in Period *A* to 0.32 gm. in Period *B* and to 0.53 gm. in Period *C*, but because of the variability, as

TABLE 3

Mean daily intake, excretion, and retention of calcium, phosphorus, and nitrogen for all subjects for each period and for all periods

PERIOD	INTAKE		EXCRETION				RETENTION	
			Urinary		Fecal			
	Amount	Standard deviation	Amount	Standard deviation	Amount	Standard deviation	Amount	Standard deviation
Calcium								
	gm./day	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*
A	1.11	0.17	0.20	0.06	0.89	0.11	0.02	0.13
B	1.07	0.17	0.21	0.05	0.94	0.14	−0.08	0.14
C	1.14	0.10	0.21	0.07	0.97	0.10	−0.04	0.11
Mean.....	1.11		0.21		0.93		−0.03	
Phosphorus								
A	1.18	0.22	0.70	0.08	0.47	0.08	0.01	0.08
B	1.18	0.28	0.70	0.08	0.55	0.13	−0.07	0.12
C	1.23	0.21	0.65	0.06	0.57	0.06	0.01	0.08
Mean.....	1.20		0.68		0.53		−0.01	
Nitrogen								
A	9.97	0.30	9.05	1.36	0.71	0.20	0.21	0.73
B	9.93	0.35	8.94	0.97	0.67	0.06	0.32	0.62
C	10.09	0.43	8.95	1.26	0.61	0.17	0.53	0.85
Mean.....	10.00		8.98		0.66		0.36	

shown by the standard deviations, these increases were not significant. The urinary nitrogen and the retention of nitrogen during Period *B*, when milk protein was included in all three meals, was not significantly different from that in Periods *A* and *C* when no animal protein (except the milk solids in the bread) was present in the noon meal. Multiple regression on the nitrogen excretion per day on the amount overweight at the beginning of each period and the weight lost during each period was not significant.

The algebraic nature of the mean retention tends to mask its implications for the individual subject. In Table 4, therefore, is given the mean daily retention of calcium, phosphorus, and nitrogen for each subject for each period and for all periods. There were several cases where the subjects did not approach the state of equilibrium indicated by the means in Table 3. The retentions or losses of the different nutrients, however, were not influenced by age of the subjects nor by their total weight losses.

Considering each of the twelve subjects' retentions of calcium for each of three periods, there are thirty-six studies of calcium metabolism. In three of these, 10 per cent or more of the calcium intake was retained, but in eleven cases, the total calcium excretion exceeded the intake by 10 per cent or more, resulting in loss of this mineral from the body.

Similarly there were two of the thirty-six studies of phosphorus metabolism in which 10 per cent or more of the intake was being retained and five cases in which the loss was of this magnitude.

When the mean retentions for all three periods are considered, no subject retained significant amounts of calcium or phosphorus. Subjects *8* and *12* had significant losses of calcium and Subject *11* of phosphorus. Subjects *3*, *4*, *5*, *7*, *9*, and *12* retained nitrogen, and Subjects *8*, *10*, and *11* excreted more than was provided by the food intake.

DISCUSSION

The pattern of weight loss was usual, and the amount lost approached the theoretical value to be expected from calculated differences between caloric needs and the calories furnished.

The diet of usual foods, including bread at each meal, proved satisfactory to the subjects. They did not object to the small amount of butter; in fact, some wanted to omit all fat, although they could not be permitted to do so. They preferred the lunches with milk, because they did not get as hungry before dinner. All subjects were encouraged to modify their food habits in order to maintain normal weight rather than to omit entirely what they called "starchy" and "fatty" foods.

The metabolism data do not entirely follow the usual pattern for young women of this age. McKay *et al.* (8), in seven-day metabolism studies of 124 young women on self-chosen diets, found the levels of daily intake at which equilibrium could be expected were: 0.8 gm. calcium, 1.0 gm. phosphorus, and 9 gm. nitrogen. However, when subjects were on controlled adequate diets with intakes of this

TABLE 4

Mean daily retention of calcium, phosphorus, and nitrogen for each period for each subject

PERIOD	SUBJECT 1	SUBJECT 2	SUBJECT 3	SUBJECT 4	SUBJECT 5	SUBJECT 6	SUBJECT 7	SUBJECT 8	SUBJECT 9	SUBJECT 10	SUBJECT 11	SUBJECT 12
Calcium Retention												
	gm./day	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*
A	0.01	−0.01	0.15	0.03	0.05	0.01	−0.07	−0.16	0.31	0.13	−0.09	−0.07
B	0.14	−0.19	−0.14	−0.19	0.08	0.02	0.01	−0.01	−0.23	−0.01	−0.17	−0.29
C	0.10	0.06	−0.11	−0.15	0.06	−0.03	−0.18	−0.27	−0.06	−0.01	0.05	−0.03
Mean	0.08	−0.05	−0.03	−0.10	0.06	0.00	−0.08	−0.15	0.01	0.04	−0.07	−0.13
Phosphorus Retention												
A	0.02	−0.02	0.09	0.07	−0.03	0.00	0.02	−0.14	0.18	0.07	−0.09	−0.03
B	−0.01	−0.14	0.00	−0.11	−0.01	0.03	0.07	0.00	−0.09	−0.10	−0.37	−0.11
C	0.03	0.05	0.03	0.03	0.13	0.06	−0.04	−0.15	−0.01	−0.13	−0.01	0.07
Mean	0.01	−0.04	0.04	0.00	0.03	0.03	0.02	−0.10	0.03	−0.05	−0.16	−0.02
Nitrogen Retention												
A	−0.13	0.19	−0.09	0.72	0.18	0.27	1.21	−1.40	1.18	0.58	−0.57	0.40
B	0.40	0.32	0.90	0.09	0.52	0.14	1.29	0.22	0.57	−1.05	−0.43	0.83
C	0.17	0.93	1.31	0.70	0.90	0.11	0.89	−0.23	1.74	−1.17	−0.37	1.41
Mean	0.15	0.48	0.71	0.50	0.53	0.17	1.13	−0.47	1.16	−0.55	−0.46	0.88

size, as many as 70 per cent had significant retentions.

The mean levels of intake of the present study were 37 per cent higher for calcium, 20 per cent higher for phosphorus, and 13 per cent higher for nitrogen than the intakes reported by McKay. Moreover, the intakes were constant and controlled. Nevertheless, equilibrium was not uniformly attained by each subject during each nine-day period, and in some cases the loss was great enough to arouse concern. Eleven of these subjects were eighteen and twenty years old, and the recommended allowance for protein for the age sixteen to twenty years is 75 gm., 12 gm. higher than the 63 gm. on the controlled diet. Six subjects, however, were able to retain nitrogen on this lower intake but not in optimum amounts for the requirements of their age.

In a previous study by Leverton and Rhodes (2) of weight reduction on a 1200-calorie diet, two-day periods in each of eight consecutive weeks were used for obtaining metabolism data. The daily calcium intake of Group *I* was 1.22 gm. and the mean retention was 0.11 gm. as compared with 1.11 gm. and −0.03 gm. for this study. In Group *II* with a daily protein intake of 100 gm., the calcium intake was 1.41 gm. daily and the mean retention −0.07. There is a possibility that the small amount of fat, especially of butterfat which yields more fatty acids than other fat, in the 1200-calorie diets in both studies may account for the calcium retentions being lower than expected on the optimum daily intake of 1 gm. calcium. Group *I* had 25 gm. butter daily in the total intake of 43 gm. fat, and Group *II* had 34 gm. fat but no butterfat. The diet in the present study supplied 40 gm. fat per day, of which 9 gm. were butterfat.

Intakes and retentions of phosphorus and nitrogen were similar in the two studies. The nutritional status of all the subjects in regard to nitrogen was generally better than for either calcium or phosphorus.

Young women of this age need to store calcium and phosphorus for the final stages of physical maturation and for the future demands of adulthood and child-bearing. Results of this and other studies indicate that weight reduction is likely to interfere with such storage, even though the diet furnishes the nutrients regularly, in adequate amounts, and from usual sources. Thus the danger of aberrant diets is accentuated. Prevention of obesity thus becomes increasingly important from the nutritional as well as the aesthetic and emotional standpoint.

It is evident from the foregoing results that, under the conditions of this study, the use of enriched bread was perfectly compatible with the objective of using a low-cost adequate diet of usual foods to obtain a reduction in weight.

SUMMARY AND CONCLUSIONS

Twelve obese young women lost an average of 19.2 lb. during fifty-four days on a controlled 1200-calorie optimum diet which was made up of usual foods, including bread at each meal.

Metabolism data for all subjects for three, nine-day periods indicated equilibrium in the case of calcium and phosphorus and an average daily storage of 0.36 gm. nitrogen. Figures for individual subjects, however, showed that the optimum intakes of calcium and phosphorus did not guarantee the retentions which would have been expected and desirable. Nitrogen metabolism during a period with milk protein in the mid-day meal was not different from that during periods when no animal protein was present in this meal.

Evidence is accumulating to indicate that during weight reduction, metabolism of calcium and phosphorus of the obese young woman is less efficient than in the normal woman of the same age.

The possibility of nutritional impairment during weight reduction, even if the diet is optimum, thus becomes an added danger and disadvantage of obesity.

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Yeast goes back at least as far as the Egyptians, for it was mentioned in one of their medical books of 1550 B.C. It was also known to the Greeks and Romans, who baked leavened breads.

Public Health Aspects of Brucellosis[1]

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ONE might wonder of what interest the disease brucellosis is to a dietitian. In this day of modern sanitation we often overlook the benefits that the public gains as a result of the vigilance of public health personnel. Food-borne infectious diseases, such as tuberculosis and typhoid fever, have almost disappeared from large parts of this country in the past twenty-five years, largely as a consequence of the recognition and elimination of potential sources of contamination of human food. However, we still have important food-borne diseases in this country which have not been controlled either because of a lack of knowledge concerning their transmission and control, or more often, because of a lack of a concerted effort to apply existing knowledge. Most authorities agree that brucellosis is today the most important disease of animals in this country which is transmissible to man. It is my purpose here to review briefly the evidence that this disease may be food-borne and to outline a few of the methods which have been proposed for its control. The statements which follow are largely based upon my experience in investigating various aspects of this disease at the University of Minnesota during the past ten years.

HISTORY OF BRUCELLOSIS

Brucellosis was first recognized as a disease entity in the Mediterranean area in 1859. It was found to be particularly prevalent in the populace of Malta and was soon known by the name "Malta fever" or "undulant fever." The disease was so prevalent that it incapacitated a large part of the military forces of Great Britain in that area. Therefore, in 1904 a commission was formed to investigate its cause and possible means of prevention. The next year Zammit (1), a member of the commission, accidentally discovered that the numerous goats on the island were the natural reservoir for the disease, and the causative bacterium was found to be abundant in their milk. Following the cessation of consumption of raw goat's milk by the military forces on the island, brucellosis almost immediately ceased to be a problem. Despite this observation, brucellosis has become increasingly prevalent in other parts of the world.

Shortly after the organism of brucellosis was found in man and goats, almost identical organisms were found in the body fluids, tissues, and milk of aborting cows and pigs in Europe and in this country. The organism found in goats has been called *Brucella melitensis*; that found in cows, *Brucella abortus*; and that isolated from hogs, *Brucella suis*. All three varieties are capable of infecting man. In Minnesota, the most frequent variety causing disease in man is *Br. abortus*. In Iowa, however, *Br. suis* is the most common type found in human beings. In other areas, such as Malta and Mexico, *Br. melitensis* is the common offender. This is of some importance since *Br. abortus*, the prevalent variety in Minnesota, appears to be the least invasive and the least virulent of the three.

INCIDENCE OF BRUCELLOSIS

The importance and prevalence of this disease are somewhat difficult to assess. It has been estimated that 5 per cent of the adult female cattle and 20 per cent of the herds of cattle in this country are infected with Brucella. The total annual loss to the dairy industry has been set at $100 million as a consequence of reduced milk production, fewer veal calves, and necessary replacement of dairy cows. The incidence of the disease in swine is considerable in certain areas (Iowa and Indiana), but no exact figures are available (2).

The prevalence of brucellosis in human beings has been obscured by the considerable difficulties often encountered in establishing the diagnosis. It has become increasingly clear, however, that brucellosis is largely an occupational disease. The work of Hardy and Jordan (3) in Iowa set the incidence of the disease in that state at 12.3 cases per year per 100,000

[1] Sponsored by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration. Presented before the annual meeting of the Minnesota Dietetic Association in Minneapolis, on May 19, 1950.

population. The incidence, however, was much higher in three groups of workers: male farm workers (43.0), veterinarians (250.0), and packing plant employees (271.5). The disease in most areas is three to four times more common in men than in women. The difference appears to be due to the fact that men are more likely to come into contact with infected farm animals. Brucellosis is primarily a disease of adolescents and adults; it is infrequent among young children and the aged, presumably because the latter seldom have direct contact with infected animals.

The first cases of human brucellosis in Minnesota were reported in 1927. In the next eleven years (through 1937), only 710 cases were reported, but in the following nine years (1938 through 1946) 2605 cases were reported (4). Thus, there was more than a threefold increase in the number of cases reported during that period. This increase may reflect in part an improvement in our ability to establish the diagnosis. In a study carried out at the University of Minnesota Hospitals, 19.5 per cent of 553 adult clinic patients were found to react to the intradermal injection of Brucella protein (5). In a recent study, Spink and Anderson (6) found that 18.5 per cent of 1627 blood donors at that hospital had demonstrable Brucella agglutinating antibody in their serum, although few of these people admitted having any symptoms of brucellosis. This suggests that many people in Minnesota are exposed to Brucella who never develop an illness which can be recognized as brucellosis.

SOURCE OF INFECTION

The route by which Brucella gain entry into the human body varies with the source of exposure. It is probable that Brucella ingested in contaminated milk and other dairy products enter through the oral pharynx. The gastric juices are able to kill the organisms quickly through the action of hydrochloric acid and enzymes. It has also been established that infected dusts and droplets may allow invasion of the organisms through the respiratory passages and the conjunctiva. However, since human brucellosis is primarily a disease resulting from direct contact with infected animals or animal products, it is likely that the organisms usually enter the body through the skin, particularly if the skin is abraded. Experimentally, brucellosis has been produced with much greater ease by this route than by the oral route. Although it is likely that only a small fraction of the cases of brucellosis in Minnesota and the surrounding states are the result of the ingestion of dairy products containing Brucella, the importance of this potential source of infection has been emphasized by the fact that the only known epidemics of the disease have *all* been traced to the use of unpasteurized dairy products coming from cows having brucellosis (Bang's disease or contagious abortion). Transmission of the disease from human to human is rare.

The importance of human brucellosis is due not to a high mortality rate (1 to 3 per cent) or frequency of serious complications. It is due rather to the frequent occurrence of continuous or recurrent disabling symptoms lasting for several months. About one-third of all cases coming to a doctor for treatment of this disease are unable to work for three months or longer; some are disabled for a year or more.

CONTROL MEASURES

Since the reservoir of the disease is among domestic animals, the ultimate elimination of the human disease rests on an effective plan for its control in animals. Unfortunately, because of the complexity of the disease and because of economic factors, the responsible agencies have not come to agree on a uniform plan of control and eradication. However, a brief outline will be given of those measures which have been used and seem to be effective (2).

(a) Certainly there are few in this era who do not admit that *all* milk and milk products sold for human consumption should be pasteurized. The most healthy-looking cow and the cleanest of certified milk may contain Brucella as well as other pathogenic bacteria. Pasteurization is effective, harmless, and well worth its moderate cost. But pasteurization alone will not eliminate human brucellosis; nor will inspection of meat, since the carcass of an infected animal may appear to be entirely normal.

(b) The control of this disease in human beings will depend on the education of the professions and the public as to the epidemiology, the importance, and the control of the disease in animals. This control can be accomplished best by carrying out an area control plan based on prevailing local conditions and closely supervised by county, state, and federal agencies.

(c) The most desirable plan for control of the disease in cows, especially in areas where the disease is not widespread, is detection of infection by periodic blood agglutination tests and slaughter of all infected cows. Such programs should be supported by tax funds, and farmers should be paid for the loss of valuable cows.

(d) Where the disease is very widespread in cattle or the cattle are too valuable to slaughter, the most effective means of control appears to be separation of infected cattle from the remainder of the herd and vaccination of all calves four to eight months of age with live Brucella vaccine (strain 19). Adult cattle and pregnant heifers should not be vaccinated. The herd should be tested at frequent intervals by the blood agglutination test in order to detect any newly infected cattle which may serve to spread the disease anew.

(e) The control of the disease in swine is an important, and as yet, an unsolved problem. The blood agglutination test is reliable in detecting the disease

on a herd basis, but it is not reliable in individual hogs. An effective vaccine has not been developed for hogs. There is no drug or antibiotic which has proved to be effective and practical in the eradication of the disease from either hogs or cattle.

DIETETIC ASPECTS OF BRUCELLOSIS

Finally, I shall make a few remarks which apply more directly to dietetics. I have already pointed out that Brucella may be present in derivatives of whole milk. In fact, they are usually concentrated where the butterfat content is highest. Hence, such products as cream, ice cream, butter, and cheese should all be pasteurized prior to human consumption. It is true that the aging of certain types of cheese may lead to a decline in the number of viable Brucella. However, *Br. abortus* will remain viable in Roquefort cheese for as long as two months. Pasteurization is the only method which can be trusted to destroy all Brucella in such foods.

In the infected animal, Brucella are frequently found in the blood, lymph nodes, liver, spleen, bone marrow, mammary glands, and reproductive organs. They are seldom found in muscle. The danger of contracting the disease from eating raw or rare cooked meat is slight because of this and the fact that gastric juice usually kills Brucella. There is no doubt that uncooked meat products, such as liver sausage, hamburger, and sweetbreads, might contain Brucella. It should be emphasized, however, that from the practical point of view, such foods rarely cause brucellosis in those who eat them, though the disease commonly occurs among the packing plant workers who prepare them. The conclusion seems justified that any person who handles raw meat may contract the disease; the organisms undoubtedly gain access to their bodies through the skin, particularly where abrasions and cuts are present. There is also some theoretical danger in cutting meat from an infected carcass with a saw since bone dust containing Brucella might be inhaled. The importance of this possible source of infection has not been established.

The most effective means of destruction of Brucella in meat is adequate cooking. It is generally agreed that Brucella are killed by heating to 145°F. (63°C.) for 15 min. Freezing cannot be trusted to kill Brucella. In fact, we have found that *Br. abortus* quickly frozen at −70°C. and then dried remain alive for two years or longer.

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Vegetables in the Low-Sodium Diet

Most vegetables, fresh or frozen, can be used without restriction in the low-sodium diet, but a few must be omitted because of the large amount of sodium they contain. Here are the ones that should *not* be used:

Beets	Peas, commercially frozen
Greens of any kind	Sauerkraut
Lima beans, commercially frozen	Any canned vegetables, unless they have been canned without salt

Of course, salt is not to be used in cooking or serving vegetables and you feel as though you can never relish them. They will be too bland, too flat! But remember that from the epicure's standpoint, most people use far too much salt for seasoning. It is the flavor of the food, not the flavor of the salt, that one wants. So approach this change in your diet with curiosity and interest; you will be surprised how good things taste.

Add a smidgen of sugar, about a quarter of a teaspoon, to your vegetables while they cook. It brings out their flavor. And do not forget to use some herbs with them occasionally. Basil is a natural with stewed tomatoes; chopped chives with carrots; a bit of mint with peas; marjoram with string beans; baked potatoes with unsalted butter and chopped parsley are something to look forward to on a cold night. Broccoli is improved by serving it with lemon juice, and half a small onion lightly sautéed in unsalted fat makes a welcome seasoning for summer squash.—*From* The Cook Book for Low-Sodium Diet *by Reena Roberts Hasker, published by the American Heart Association, New York City.*

Terminal Heating of Infant Formula

V. Retention of Nutritive Value of Milk Proteins[1]

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IN AN earlier paper (1) it was shown that the lysine content of infant formula does not change during terminal heating by prescribed methods (2, 3). Since lysine appears to be the most heat-labile amino acid of milk protein, it does not seem probable that any of the other amino acids would be destroyed. However, recent papers suggest the need for additional work on the loss of nutritive value of milk proteins during terminal heating. These investigations have been carried out by Davis, Rizzo, and Smith (4); Mader, Schroeder, and Smith (5); McInroy, Murer, and Thiessen (6); Lowry and Thiessen (7); and Rizzo, Davis, and Smith (8). They show that autoclaving protein with lactose, dextrose, and other reducing sugars under extreme conditions of time and temperature markedly lowers the nutritive value of the protein. Evidence has been presented indicating there is primarily a loss of digestibility rather than a destruction of essential amino acids. In a recent review article Patton (9) infers from data obtained by other more drastic heat treatments that the terminal heating of infant formulas containing glucose may damage the milk proteins.

EXPERIMENTAL PROCEDURE

Since the ability to promote and sustain growth is an important property of infant formula, and since it has been shown (4, 6) that the rat-growth method is remarkably well suited for showing differences between unheated and heated mixtures of protein and carbohydrate, this method was selected for the first investigations. Weanling rats were fed rations containing a low critical level of protein insufficient to support maximum growth, but as adequate as possible in every other known nutrient. The rate of weight increase was the measure of protein quality. For the second or verifying investigations, the rat depletion-repletion method of Wissler *et al.* (10) was selected. Adult rats were fed a ration containing no protein or only traces of protein but adequate in all other respects until they were depleted of a part of their tissue protein as judged by a marked loss in weight. The comparative biologic value of the protein was measured by the gain in weight when a known limited amount of the protein was used to supplement the non-protein ration during the repletion period. The selection of the repletion method for verification offered a greater opportunity for extending our overall knowledge on the subject, since Whitnah (11) has already shown by a third, the nitrogen balance method, that the digestibility and biologic value of milk proteins are very similar before and after commercial heat treatment.

In a preliminary, unlimited trial, the effect of terminal heating on the overall nutritive value of the formula rather than the specific protein nutritive value was measured by rat-growth. This trial tested only whether any nutrient or property had been sufficiently changed to retard rat-growth. Ten male rats twenty-one days old were used in each of three groups for the experiment. In this and subsequent trials, they were caged in individual wire bottom cages, and their position in the room was rotated daily by groups. Food and water were given *ad libitum*. An individual record of food offered and refused was kept. The initial weights of the rats averaged 45.0 gm. for those fed the untreated formula, 44.9 gm. for those fed the low-pressure, terminally heated formula, and 45.0 gm. for those fed the high-pressure, terminally heated formula. The rats were weighed weekly. The data given are for only nine rats in the group fed the low-pressure, terminally heated formula. One rat failed to gain and died early in the experiment. The trial was twenty-eight days in length.

The formula consisted of evaporated milk 13 fluid oz., water 26 fluid oz., dextrose (Cerelose) $1\frac{1}{4}$ avoirdupois oz. supplemented with traces of iron, copper, cobalt, manganese, and iodine. Sufficient formula was prepared for all the rats and then was divided and treated as required for the various groups. The specific conditions of heating have been mentioned in an earlier paper (1). Formula prepared in this manner contains 12.8 per cent dry matter and 2.314 per cent protein on a wet basis, or 18.10 per cent protein on a dry basis. Suitable corrections were made for the slight concentration which occurs during the high-pressure, terminal heating.

[1] Received for publication October 31, 1950.

In Protein Trial 1, the proteins of untreated infant formula, low-pressure, terminally heated infant formula, and high-pressure, terminally heated infant formula were compared by the rat-growth method with a limited protein intake. The rats were grouped and caged for the experiment as described for the preliminary unlimited trial. The trial was twenty-eight days in length. The average initial weights of the rats in Groups 1, 2, and 3 were respectively 44.0, 44.2 and 44.1 gm.

The formula was prepared as described above. Following terminal heating, sufficient dextrose was added to each of the three lots to reduce the protein content of the diet to 9.01 per cent on a dry basis. To insure insofar as possible that protein was the only growth limiting factor, 100 mcg. thiamine, 0.5 mg. calcium pantothenate, 1 mg. niacin, 100 mg. choline chloride, and 500 mg. Jones and Foster (12) mineral mixture per 100 gm. dry matter were added to the diets.

In Protein Trial 2A, the rat-repletion method (10) was used to compare the proteins of untreated and terminally heated infant formulas. The specific method followed was largely that of Frost and Sandy (13), but the non-protein diet was modified by the substitution of dextrose for sucrose, Jones and Foster (12) mineral mixture for U.S.P. No. 1, and Ruffex for Primex. Both the depletion period during which the non-protein ration was fed and the repletion period during which this ration was supplemented with protein were twelve days in length. Seven adult male rats were used per group. During the repletion period, protein was supplied at a level of 0.24 gm. nitrogen per day. The rats were housed in individual wire bottom cages and were supplied the non-protein diet and water *ad libitum*. The formula was prepared as described above except that the trace minerals were omitted, since they were supplied by the non-protein (dry) portion of the ration.

Protein Trial 2B was similar to Protein Trial *2A* except that pasteurized milk rather than evaporated milk was used in the preparation of the formula. Twice as much of the pasteurized milk was used and the amount of water added was decreased accordingly, so that the formula contained approximately the same quantity of milk solids as when prepared from evaporated milk. The rats were depleted and repleted as recorded for Trial *2A*, but it was the second depletion-repletion cycle to which the animals had been subjected. For this reason the data for the two experiments are not necessarily comparable.

RESULTS

In the preliminary, unlimited tricl the total nutritive values of the three types of formula were compared. In this twenty-eight-day trial, the rats in Group 1, fed the unheated formula, gained an average of 99.1 ± 5.05 gm.; those in Group 2, fed the low-pressure, terminally heated formula, gained an average of 94.3 ± 3.98 gm.; and those in Group 3, fed the high-pressure, terminally heated formula gained an average of 85.0 ± 3.16 gm. The difference, 4.8 ± 6.43 gm., between Groups 1 and 2 was not significant. The difference between Groups 1 and 3 was 14.1 ± 5.96 gm. The t value was 2.36, and the odds are better than 95 in 100 that this difference was significant and not due to chance alone. The average grams gain per gram dry food consumed was calculated for each group. For Group 1, this figure was 0.417 ± 0.009 gm.; for Group 2, 0.412 ± 0.013 gm.; and for Group 3, 0.411 ± 0.010 gm. The differences were not statistically significant in any case. Since the economy of food utilization was so similar for the three groups, the probability exists that the data on growth may be explained on the basis that the high-pressure, terminally heated formula was less palatable for rats. This theory is also supported by the data of Protein Trial *1*. An infant formula is a very dilute food for rats. The rats often consumed formula equivalent to 70 or 80 per cent of their body weight in 24 hr. At this level of consumption, the balance between palatability and the amount of liquid that could be comfortably consumed must have been extremely delicate.

In Protein Trial 1, the nutritive values of the proteins were compared by the rat-growth method. Since the protein content of the ration was limited at a low level, the growth rate was much slower than in the preliminary unlimited experiment. During the twenty-eight-day trial, the rats in Group 1, fed the unheated formula, gained an average of 46.9 ± 4.04 gm.; those in Group 2, fed the low-pressure terminally heated formula, gained 46.2 ± 2.26 gm.; and those in Group 3, fed the high-pressure, terminally heated formula, gained 41.6 ± 2.71 gm. The difference between Groups 1 and 2 was 0.7 ± 4.62 gm. and that between 1 and 3 was 5.3 ± 4.86 gm. Neither of the differences was statistically significant. The average grams gain per gram protein consumed was calculated for each group. For Group 1, this figure was 2.53 ± 0.111 gm.; for Group 2, 2.54 ± 0.095 gm.; and for Group 3, 2.45 ± 0.129 gm. The difference between Groups 1 and 2 was 0.01 ± 0.146 gm., and between Groups 1 and 3 was 0.06 ± 0.170 gm. These differences were not statistically significant. One may, therefore, conclude that either procedure for terminal heating may be used for preparing infant formula without damaging the milk protein.

In Protein Trial 2A, the rat-repletion method was used to evaluate the protein nutritive values of the three types of formula prepared from evaporated milk. During the repletion period, the adult rats in Group 1, fed the unheated formula, gained an average of 62.4 ± 2.1 gm.; those in Group 2, fed the low-pressure, terminally heated formula, gained an

average of 64.0 ± 3.5 gm.; and those in Group 3, fed the high-pressure, terminally heated formula, gained an average of 64.1 ± 3.1 gm. The average difference in gain between the rats fed the unheated and low-pressure heated formula was 1.6 ± 4.1 gm., and between those fed the unheated and high-pressure heated formulas was 1.7 ± 3.1 gm. Since those differences were not statistically significant, the rat-repletion data supported the rat-growth data in showing that the terminal heating of infant formula under the specific conditions outlined did not damage the milk protein.

Protein Trial 2B was similar to Protein Trial *2A*, except that the formula was prepared from pasteurized rather than evaporated milk. During the repletion period, the rats in Group 1 fed the unheated formula gained an average of 55.7 ± 2.07 gm.; those in Group 2, fed the low-pressure, terminally heated formula, gained an average of 57.7 ± 2.95 gm.; and those in Group 3, fed the high-pressure, terminally heated formula, gained an average of 57.4 ± 1.95 gm. The rats in Group 2 showed a superior gain of 2.0 ± 3.6 gm. over those in Group 1. The rats in Group 3 showed a superior gain of 1.7 ± 2.84 gm. Neither of the differences had statistical significance. These data confirm those obtained with formula prepared from evaporated milk.

SUMMARY

The nutritive value of the proteins of infant formulas before and after terminal heating have been compared by the rat-growth and rat-repletion methods. Data on formulas prepared from both evaporated milk and pasteurized milk were obtained. The data show that there was no measurable loss of protein nutritive value caused by terminal heating applied in accordance with stated methods.

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A Journey into the Future—Cleveland Annual Meeting

A visit today to the Auditorium which soon will become the scene of the 34th A.D.A. Annual Meeting is an excursion into a great emptiness, into the unfamiliar. Not yet has the spirit of science, of learning, been wafted through these shadowy corridors to endow them, even for four fleeting days, with that ephemeral quality which identifies an Annual Meeting.

The opening of the massive door to the vast assembly hall, with its vaulted ceiling and its seeming acres of expanse, suddenly effects a transformation. With miraculous dispatch, the symmetrical rows of wooden chairs disappear and in their place, like a gay cardboard carnival, stand the exhibitors' booths, resplendent with bright, fresh paint and manned by the same familiar and cordial personalities.

The sounds of countless voices, the scents of freshly baked tidbits and aromatic coffee are left behind, and the guided tour is continued, to the little theatre. On the semi-darkened stage, stand, not a rickety, scarred table supporting an antiquated typewriter, a chair or two, but a panel of distinguished speakers, one of them addressing the "capacity house."

The journey progresses through other rooms which, to some, might have seemed filled with a vacant, gray twilight, with here and there a faded crepe paper relic of an earlier festive occasion, but, actually, they, too, are transformed. There are rows upon rows of interested faces, more speakers, and discussion groups.

One fine morning this October, a return trip to the Auditorium will take place, but never again will it spell bleakness and unfamiliarity.

Effect of Reheating on Palatability, Nutritive Value, and Bacterial Count of Frozen Cooked Foods

II. Meat Dishes[1]

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THIS report is a continuation of a study of the effect of reheating methods on the quality of frozen cooked foods and the time required. Information on objectives and methods have been published previously (1).

EXPERIMENTAL PROCEDURE

Preparation

The meat recipes were completely cooked by commonly accepted procedures and immediately chilled by setting the pans in cold water. Portions of one serving were packaged as follows: creamed chicken, 200 gm. in a 100-gm. frozen rice ring; chicken paprika, one piece of breast and one piece of leg with 100 gm. gravy; spaghetti and meat balls, 150 gm. spaghetti and sauce and three meat balls; and ham patties, one 90-gm. patty.

For comparison in the study of ham patties, raw patties from the same lot were frozen, stored, and then cooked for palatability rating.

The meat dishes were frozen and stored in the same manner as the vegetables (1). They were stored from four and a quarter to five months, with the exception of the ham patties, which were stored two months.

Reheating Methods

The food was reheated from the frozen state (a) in a Maxon Whirlwind oven at approximately 300°F., with the unwrapped foods placed on Pyrex plates and covered with aluminum foil; (b) in a household oven at 400°F., with the foods on Pyrex plates as above; (c) in the top of a covered Pyrex double boiler over a gas burner; (d) in a Pliofilm bag and immersed in boiling water; and (e) in a Pliofilm bag and placed on a Pyrex plate in a dielectric oven. The foods were also thawed at room temperature to an internal temperature of 33°F. and then reheated in a household oven, in boiling water, and in a dielectric oven.[2] The boiling water method could not be used for the creamed chicken on rice because this method resulted in a misshapen product.

All samples were reheated to an internal temperature of 180° to 185°F. Temperatures were obtained with an electronic recording potentiometer with the exception of the dielectrically cooked samples in which it was necessary to substitute a stainless steel expansion type thermometer.

Palatability

A panel of six judges rated the quality characteristics on a basis of ten points: 10, extremely good; 9, very good; 8, good; 7, plus; 6, medium; 5, minus; 4, fair; 3, poor; 2, very poor; and 1, unacceptable.

All of the products were judged for surface appearance, color, aroma, flavor, juiciness of the meat, and tenderness of the meat. In addition, the creamed chicken on rice was judged for smoothness of gravy, consistency of gravy, and the fluffiness of the rice; the chicken paprika was judged for stringiness of meat, smoothness of gravy, and consistency of gravy; the spaghetti and meat balls were judged for texture and moisture of the spaghetti.

Vitamin Analyses and Statistical Treatment

Procedures for thiamine analyis, bacterial plate counts and analysis, and statistical treatment were the same as described (1).

For comparison, one commercial product of a similar nature was tested for initial bacterial plate

[1] These studies were aided by a contract between the Office of Naval Research, Department of the Navy, and Cornell University (NR 160-079). Received for publication September 27, 1950.

[2] Radarange, manufactured by the Raytheon Manufacturing Company, Waltham, Massachusetts.

TABLE 1

*Mean time required to reheat frozen cooked meat dishes**

REHEATING METHOD	MEAN REHEATING TIME			
	Creamed chicken on rice	Paprika chicken and gravy	Spaghetti and meat balls	Ham patties
Frozen Meat				
	min.	*min.*	*min.*	*min.*
Maxon oven	60	28	27	30
Household oven	90	60	75	50
Double boiler	—	75	85	45
Boiling water	—	32	50	35
Dielectric oven	8	5	4	3¼
Thawed Meat†				
Household oven	70	37	60	40
Boiling water	—	27	35	30
Dielectric oven	6	4	3½	3

* Each product was cooked "done" prior to freezing, and each was reheated to an internal temperature of 180° to 185°F.

† Thawing at room temperature to an internal temperature of 33°F. required 135 min. for creamed chicken; 50 min. for both the paprika chicken and the spaghetti and meat balls; and 25 min. for the ham patties.

count and for the effect of reheating. A commercial chicken à la king was obtained from the local market and held at 0°F. until used.

RESULTS AND DISCUSSION

Reheating Time

The time to reheat the unthawed meat dishes ranged from 3¼ to 90 min., depending upon the product and the reheating method. Prior thawing decreased the reheating time only slightly. The household oven and double boiler methods required the longest times and the dielectric the least (Table 1).

Weight Changes

The smallest weight changes occurred when reheating was done in the household oven and in the double boiler (Table 2). The largest weight loss in every food occurred in the dielectric method, with intermediate loss in the Maxon oven. The products reheated by the boiling water method increased in weight, presumedly by the seepage of water through the Pliofilm bag. In every product, the differences in weight change due to methods of reheating were highly significant.

Palatability

Highly significant differences were also observed between reheating methods for the total palatability scores of the paprika chicken, the spaghetti and meat balls, and the ham patties.

In each of these three products, the method resulting in the highest score was the boiling water method. The chicken paprika and spaghetti and meat balls were preferred reheated by this method from the frozen state; the ham patties were preferred reheated by the same method after thawing.

TABLE 2

Mean weight change in frozen cooked meat dishes during reheating by several methods

REHEATING METHOD	MEAN WEIGHT CHANGE			
	Creamed chicken on rice	Paprika chicken and gravy	Spaghetti and meat balls	Ham patties
Frozen Meat				
	%	%	%	%
Maxon oven	−11	−11	−10	−11
Household oven	− 1	− 8	− 2	− 1
Double boiler	—	− 2	+ 1	+ 8
Boiling water	—	+19	+23	+34
Dielectric oven	−24	−18	−17	−24
Thawed Meat				
Household oven	− 2	− 2	− 1	0
Boiling water	—	+18	+ 8	+16
Dielectric oven	−16	−12	−19	−17
F value*.....	26.80†	9.31†	16.32†	9.05†

* F values for differences between reheating methods.

† Highly significant.

TABLE 3

*Total palatability scores of frozen cooked meat dishes reheated by several methods**

REHEATING METHOD	TOTAL PALATABILITY SCORE			
	Creamed chicken on rice	Paprika chicken and gravy	Spaghetti and meat balls	Ham patties†
Frozen Meat				
	points	*points*	*points*	*points*
Maxon oven	7.8	7.6	7.2	7.9
Household oven	7.6	8.0	8.0	8.0
Double boiler	—	7.8	8.2	7.5
Boiling water	—	8.1	8.4	7.8
Dielectric oven	7.3	7.7	6.8	6.5
Thawed Meat				
Household oven	7.2	8.0	7.7	7.8
Boiling water	—	8.0	7.8	8.4
Dielectric oven	7.3	7.5	7.2	6.5
F value‡.....	1.61	3.39✱	10.36✱	11.73✱

* Total possible score was 10.

† Ham patties from the same original lot were also frozen before cooking and cooked as a comparison with the frozen cooked patties; these patties scored 8.8 points.

‡ F values for differences between reheating methods.

✱ Highly significant.

The lowest scoring method for these three products was by dielectric heating. This was true of the thawed paprika chicken, the frozen spaghetti and meat balls, and both the frozen and the thawed ham patties (Table 3).

The frozen raw ham patties after being cooked were scored significantly higher than were the frozen cooked ham patties reheated by any of the five methods (Table 3).

The palatability scores for the specific characteristics of the products reheated by the five methods are given in Tables 4 and 5.

With few exceptions, products reheated by the dielectric method were scored significantly lower than those reheated by the other methods. These exceptions were: (a) the Maxon oven method scored lowest for surface appearance and color of the spaghetti and meat balls (Table 4); (b) the smoothness and consistency of the gravy of the creamed chicken reheated from the thawed state in the household oven was scored lowest (Table 5); and (c) the scores for smoothness of the gravy of the paprika chicken were lowest in that reheated in the Maxon oven from the frozen state (Table 5).

Characteristics which were scored but not included in Tables 4 and 5 because no significant differences occurred were: fluffiness of the rice in the creamed chicken which averaged 6.8; consistency of the gravy of the paprika chicken which averaged 7.5; and moisture of the spaghetti and meat balls which averaged 7.9.

Vitamin Content

The thiamine content in micrograms per 100 gm. of the reheated products averaged 0.072 for the creamed chicken on rice, 0.066 for the paprika chicken with gravy, 0.055 for the spaghetti and meat balls, and 0.087 for the ham patties.

In all of the products, the high retentions indicated that little or no thiamine was actually lost during thawing or heating procedures (Table 6).

No significant differences were noted between the retention of thiamine in the two chicken dishes reheated by the five methods. Significant differences occurred between the thiamine retentions in the spaghetti and meat balls reheated by the five methods. The retentions of thiamine in the spaghetti and meat balls ranged from 93 per cent during reheating from the frozen state in the household oven to 118 per cent in the Maxon oven.

The differences between the thiamine retentions in the ham patties by the several reheating methods were highly significant. Ham patties reheated from the frozen state retained from 88 per cent in those reheated in the Maxon oven to 125 per cent in those reheated in boiling water.

Bacterial Studies

The average bacterial plate counts were all low (Table 7). The organisms found were *Bacillus cereus*, *Bacillus magatherium*, and Staphylococcus strains. Some of the Staphylococcus strains were coagulase positive.

The average initial count of the frozen commercial chicken à la king was 75,000 per gram as compared

TABLE 4

*Palatability scores and specific characteristics of frozen cooked meat dishes reheated by several methods**

REHEATING METHOD	SCORE			
	Creamed chicken on rice	Paprika chicken and gravy	Spaghetti and meat balls	Ham patties
Surface Appearance				
	points	*points*	*points*	*points*
Frozen meat				
Maxon oven	7.4	7.6	5.6	6.8
Household oven	7.3	8.2	7.5	7.8
Double boiler	—	8.2	7.7	6.9
Boiling water	—	8.0	8.2	7.4
Dielectric oven	5.8	7.0	5.7	5.7
Thawed meat				
Household oven	7.0	8.6	7.1	7.5
Boiling water	—	8.6	7.6	8.5
Dielectric oven	6.5	7.8	6.3	5.7
Frozen raw meat				
Household oven	—	—	—	8.9
F value†	2.88‡	2.13	7.13 **	4.31 **
Color				
Frozen meat				
Maxon oven	7.9	7.8	6.1	7.0
Household oven	7.8	8.3	7.8	6.9
Double boiler	—	8.6	8.6	5.9
Boiling water	—	8.2	8.2	6.7
Dielectric oven	6.5	7.7	6.6	5.0
Thawed meat				
Household oven	7.9	8.6	7.5	6.9
Boiling water	—	8.3	7.8	8.4
Dielectric oven	6.7	8.1	6.4	5.1
Frozen raw meat				
Household oven	—	—	—	9.0
F value†	3.65‡	1.33	5.46 **	6.37 **
Aroma				
Frozen meat				
Maxon oven	8.0	8.2	7.7	8.3
Household oven	8.2	8.6	7.8	8.5
Double boiler	—	8.1	7.7	7.5
Boiling water	—	8.3	7.9	8.1
Dielectric oven	7.3	8.4	6.7	7.8
Thawed meat				
Household oven	7.7	7.9	7.6	8.3
Boiling water	—	8.3	7.5	8.3
Dielectric oven	7.4	8.1	7.5	7.8
Frozen raw meat				
Household oven	—	—	—	8.5
F value†	1.97	0.94	1.21	2.65‡

TABLE 4—*Continued*

REHEATING METHOD	SCORE			
	Creamed chicken on rice	Paprika chicken and gravy	Spaghetti and meat balls	Ham patties
Flavor				
	points	*points*	*points*	*points*
Frozen meat				
Maxon oven	8.4	8.4	8.2	8.4
Household oven	7.7	8.4	8.2	8.3
Double boiler	—	8.4	8.4	7.8
Boiling water	—	8.6	8.4	7.7
Dielectric oven	8.2	8.7	7.3	7.2
Thawed meat				
Household oven	7.3	8.3	8.1	8.1
Boiling water	—	7.9	7.6	8.2
Dielectric oven	7.4	7.8	7.8	7.2
Frozen raw meat				
Household oven	—	—	—	8.6
F value†	3.52‡	2.16	1.64	1.98
Tenderness of Meat				
Frozen meat				
Maxon oven	8.3	7.2	8.1	8.3
Household oven	8.1	8.2	8.4	8.3
Double boiler	—	7.2	8.9	8.1
Boiling water	—	8.2	8.9	8.3
Dielectric oven	7.6	7.3	6.7	6.7
Thawed meat				
Household oven	7.9	7.8	8.4	8.3
Boiling water	—	8.1	8.6	8.3
Dielectric oven	7.5	6.8	7.9	6.6
Frozen raw meat				
Household oven	—	—	—	8.8
F value†	1.76	5.98⁂	3.12‡	9.40⁂
Juiciness of Meat				
Frozen meat				
Maxon oven	—	7.2	7.2	8.8
Household oven	—	7.7	8.1	8.5
Double boiler	—	7.7	8.4	8.8
Boiling water	—	8.2	8.6	8.6
Dielectric oven	—	7.5	6.1	6.7
Thawed meat				
Household oven	—	7.8	7.6	8.1
Boiling water	—	8.0	8.0	9.1
Dielectric oven	—	7.1	7.4	6.7
Frozen raw meat				
Household oven	—	—	—	9.1
F value†	—	2.33‡	6.27⁂	9.16⁂

* Total possible score was 10.
† F value for differences between reheating methods.
‡ Significant.
⁂ Highly significant.

with the 1848 count in the laboratory-prepared creamed chicken. The commercial product was then reheated in the top of a double boiler for 35 min.

TABLE 5

*Individual palatability scores of creamed chicken on rice, chicken paprika, and spaghetti and meat balls**

REHEATING METHOD	PALATABILITY SCORE				
	Creamed chicken on rice		Chicken paprika		Spaghetti and meat balls (texture)
	Smoothness of gravy	Consistency of gravy	Stringiness of meat	Smoothness of gravy	
Frozen Meat					
	points	*points*	*points*	*points*	*points*
Maxon oven	7.5	7.5	7.6	7.3	7.7
Household oven	7.4	7.3	8.3	6.9	8.2
Double boiler	—	—	7.6	7.4	8.2
Boiling water	—	—	8.4	8.2	8.7
Dielectric oven	7.8	7.8	7.7	7.6	8.0
Thawed Meat					
Household oven	6.7	6.3	8.1	7.7	7.8
Boiling water	—	—	8.1	7.7	8.0
Dielectric oven	7.8	7.9	7.4	7.7	7.3
F value†	3.04‡	4.73⁂	4.04⁂	4.56⁂	2.53‡

* Total possible score was 10.
† F value for differences between reheating methods.
‡ Significant.
⁂ Highly significant.

according to the directions on the package. After heating, the internal temperature of the chicken à la king was 121°F. and the average plate count was 4750, or one-fifteenth of the initial count. Reheating was continued until the internal temperature reached 180° to 185°F., which required 10 min. more, or a total of 45 min. At this time, the count was 4 organisms per gram.

In addition, because the directions on the package gave an alternate procedure, the commercially packed chicken à la king was thawed to an internal temperature of 33°F. at room temperature (about 2 hr.). The average plate count was 50,000 organisms per gram. After being reheated in the double boiler for the suggested 15 min., the internal temperature was 75°F. and the plate count was 6500 organisms per gram. Reheating was continued until the internal temperature reached 180° to 185°F., which required a total of 40 min. At this time, the average plate count was 6 organisms per gram. Perhaps, the directions on the package indicated thawing to room temperature rather than to 33°F. The effect of so doing on the bacterial count was not determined.

These results show the importance of the final temperature to which food is heated. The count in the commercial product fell well below the permissible maximum plate count of 100,000 per gram, suggested by Fitzgerald (2). Proctor and Phillips (3) reported an average count of 46,000 per gram

TABLE 6

Mean thiamine retentions in frozen cooked meat dishes during reheating by several methods

REHEATING METHOD	MEAN THIAMINE RETENTION			
	Creamed chicken on rice	Paprika chicken and gravy*	Spaghetti and meat balls	Ham patties
Frozen Meat				
	%	%	%	%
Maxon oven	89	114	118	88
Household oven	93	105	93	100
Double boiler	—	135	97	111
Boiling water	—	130	113	125
Dielectric oven	99	101	105	95
Thawed Meat				
Household oven	92	98	84	93
Boiling water	—	105	81	105
Dielectric oven	106	104	90	90
F value†	1.98	0.52	3.79‡	5.96⁂

* Sampling errors were large, probably owing (a) to gravy and bone, (b) to differences between the 40 birds used, and also (c) to differences in the anatomical parts of each bird.

† F values for differences between reheating methods

‡ Significant.

⁂ Highly significant.

for twelve samples of commercially frozen chicken à la king.

The counts on the frozen and thawed commercial products were much higher than in the creamed chicken prepared under laboratory conditions. These findings emphasize further the importance of sanitation during the preparation of frozen cooked foods.

SUMMARY

Creamed chicken on rice, chicken paprika with gravy, spaghetti and meat balls, and ham patties were cooked, frozen as individual servings, and stored for four and a quarter to five months except the ham patties which were stored two months. The products were then (a) reheated from the frozen state by five methods to an internal temperature of 180° to 185°F., and (b) reheated by three methods after thawing to an internal temperature of 33°F.

The reheating times of the unthawed foods varied from 3¼ to 90 min. depending upon the product and the reheating method. The dielectric oven required the least time. The other methods in order of increasing time were: Maxon oven, boiling water, household oven, and double boiler. Thawing the individual servings prior to reheating had only a small effect upon the reheating time.

Least weight was lost during reheating in the household oven and in the double boiler. The largest weight loss occurred during reheating in the dielectric oven. The products reheated in boiling water gained weight due to seepage of water through the Pliofilm bag.

All of the products reheated by the five methods were scored as acceptable, ranging in total palatability score from 6.5 to 8.4 out of a possible maximum of 10. The palatability scores were highest for the products reheated in boiling water, and lowest for products reheated in the dielectric oven. The greatest differences were in the surface appearance of all of the products, and in the tenderness and juiciness of the meat.

Little loss of thiamine occurred from any of the products during any of the reheating methods. No significant differences occurred between the thiamine retentions in creamed chicken or in paprika chicken reheated by the several methods. Significant differences were observed in the thiamine retentions of spaghetti and meat balls and ham patties.

Low bacterial plate counts were observed after reheating of the products by all of the methods. Initial counts were low, less than 2000 per gram in all products. Organisms which did occur were of Bacillus and Staphylococcus strains.

TABLE 7

The mean bacterial plate counts of frozen cooked meat dishes before and after reheating by several methods

REHEATING METHOD	MEAN PLATE COUNT			
	Creamed chicken on rice	Paprika chicken and gravy	Spaghetti and meat balls	Ham patties
Frozen Meat				
	count/gm.	*count/gm.*	*count/gm.*	*count/gm.*
After cooking				
Maxon oven	6	2	12	2
Household oven	8	0	12	2
Double boiler	—	2	16	3
Boiling water	—	2	6	0
Dielectric oven	6	3	4	2
Count before heating	1848	16	6	1
Thawed Meat				
After cooking				
Household oven	19	0	222	2
Boiling water	—	2	8	2
Dielectric oven	4	0	8	1
Thawed to 33° F.	3280	12	75	3

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Editorial

WHY DIETETICS?[1]

MANIZA MOORE

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In the spring as high school and college seniors are beginning to consider the real meaning of commencement, emphasis on the guidance programs increases. Magazines, papers, and radio all offer advice on finding a job or choosing a career. It is almost impossible to avoid tests to determine ways of matching individuals and jobs. After reading a number of these articles and trying some of the simpler tests, it occurred to me that it might be interesting to evaluate dietetics as objectively as possible without being either the optimist "who sees the doughnut" or the pessimist "who finds the hole."

It is doubtful if many of us can remember exactly why we chose dietetics with or without aptitude tests. Try to consider the profession from your years of experience and measure its desirability as a career, much as bridge players hold a post mortem or ball fans a session of the hot stove league. To help you review your career, here are a few questions suggested by one of the rating scales in a current magazine.

(a) Do you enjoy being a dietitian?

(b) Do you recognize that you can make an important contribution to the health and well being of the community?

(c) Has your personality been enhanced by your particular job?

(d) Are you able to visualize the many possibilities for the intelligent use of your natural ability and college preparation? Are you energetic enough to follow through for yourself and those whom you serve?

(e) Is there enough responsibility in your present job to keep you interested?

(f) And important to your peace of mind—what do you think of your financial status present and future?

SATISFACTIONS OF DIETETICS

There are numerous, well-worn phrases to the effect that a happy, well-adjusted individual does better work than a misfit. Thus the opportunities for day-to-day enjoyment of the job should be a good starting point for "Why Dietetics." The most obvious personal satisfaction a dietitian enjoys comes from the contribution she makes to the health and happiness of the individual and the community. Attractive meals prepared and served to fulfill the promises of a well-planned menu and to fit the budget are a joy in themselves. Added to the immediate pride of accomplishment is the recognition given by the home-going hospital patient spreading the news of good meals, the school child telling the family about the lunches, or the workers who crowd a cafeteria where good food is obtainable in clean, attractive surroundings.

The response of the satisfied customer, patient, or employee is only part of the day-to-day enjoyment of dietetics. A less tangible, but equally important reward is the knowledge that good nutrition is contributing to the well-being of the community. The best active publicity campaigns for good nutrition are carried on by people who know good food and are able to have it. Even though the definite results may be slow in becoming apparent, the part of the dietitian in the overall program for good nutrition is that of a leader who teaches and practices good nutrition.

With such an unlimited field of influence, any dietitian will have ample opportunity to use her natural intelligence and the background material from her college work and her internship. Dietetics is never static. It is difficult for even the laziest of us to get into a rut. Some new problem will always prod us into action. We can never complain that opportunity is lacking to use our brains or draw on the store of knowledge gained through the years. Prospective dietitians can be assured that all the college courses required for membership in The American Dietetic Association and many others have a place in this background.

As you remember how you have used your resources to keep the job moving, think too of the opportunities for creative work. The many phases of dietitics provide outlets for the particular talents of all, for administration, for teaching, for research.

As an administrator, a dietitian supervises a large and important service in the hospital, school, or industry. She is responsible for the wise use of funds in the production of good food in attractive, sanitary surroundings. She must have the abilty to maintain an unusually high standard of loyalty among the members of her staff. Then, when a reduced

[1] Presented at the Southeastern Conference of Dietitians, in St. Petersburg, Florida, on April 7, 1950. Received in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of her own study and do not necessarily reflect the opinions or policy of the Veterans Administration.

budget demands miracles, the challenge is accepted and standards are maintained without obvious shrinking of portions or creaking of the organizational machinery. She interprets the policies of the management to the members of her staff and delegates authority for general supervision, for teaching, for training, for research.

For the dietitians who do not enjoy such overall responsibility, there is ample opportunity for creative work in all of these sections.

For some, there is work with the medical staff in the care of the hospital patient, teaching both patient and family to adjust to the restrictions of a modified diet. For others, training personnel for more efficient work and superior food preparation brings continuous feeling of a job well done. Research is possible in all sections of dietetics, although sometimes we seem to think of it only in the restricted area of the laboratory. Then, when a better way has been found to do a job, or a special study has shown the way to new findings in nutrition, the creative spirit can express itself in writing for publication.

In this brief sketching of the work of a dietitian, it is apparent that the emphasis has been on the bright side and rough spots have been suggested only by implication.

LIMITATIONS OF DIETETIC WORK

However, if you are asked to evaluate your career objectively, it seems only fair to admit that all is not sweetness and light every day.

Budgetary Problems

Limitation of funds for raw food or operating costs is always a cloud on the horizon for the average hospital. In a successful industry, the allotment of funds must be considered in the light of possible dividends for stockholders, either by immediate savings or gains through increased efficiency of operation.

The present trend toward a cash basis for the hospital food service removes the subsidy of full maintenance for personnel and puts us on a more business-like basis. When the members of the personnel group pay cash for hospital meals, it is for recognized value. The patient has always paid for his meals even though the profit, never the loss, is sometimes overlooked in the accounting system. Profit in a hospital food service, as well as in the industrial cafeteria, includes more than the gains of a privately owned restaurant or tea room. The profit of the hospital food service is not only the ability to be self-supporting within the limitations of the budget, but also the more important dividend of a satisfied clientele—patients or personnel. When we can show clearly that such profits result from money invested in good quality food, in modern equipment, in salaries for efficient employees, then it is good business management to make the investment.

Hospital dietetics is big business and highly competitive. We are responsible for the operation of an important department and are competing daily with everyone who believes he or she knows all about food preparation and service. If a budget which requires efficient business management means only difficulties and not a challenging problem to be solved, then perhaps you are not enjoying dietetics.

Personnel Problems

Another problem is that of personnel. Sometimes it may seem to overshadow all others if thoughtful planning is neglected. No matter how carefully employees are selected, there are always adjustments to be made, personalities to be guided, training to be done. Too often rather than train employees and plan efficient work schedules, the dietitian substitutes manual labor for supervision.

Some of you are ready to say, "But the work must be done." It is true that emergencies arise when everyone works, but remember that emergencies do not occur everyday in a well-organized department. It is difficult to sympathize with the dietitians who routinely do kitchen work and then complain that they were trained for better things. The dietitian who neglects her own responsibilities as an administrator may be a very expensive kitchen helper. As the overall supervision of the dietetic service suffers and as "emergencies" occur with increasing frequency, the dietitian may decide that her choice of a career was a mistake.

Before any qualified dietitian makes such a decision, she should be sure that she has always been ready to accept the responsibilities of the position for which she was employed. Usually the dietitian who becomes involved in routine manual labor to the neglect of professional duties has not organized the work of the department or her section of it for efficient operation. Such organizational planning is not easy and cannot be done hurriedly but will pay dividends in smooth performance and happy dietitians. If you like people, if you are interested in planning better ways of doing a job and willing to think ahead of emergencies, the personnel problem will assume its rightful place in the day's work.

Every job has its problems. Life becomes very uninteresting when there is nothing to plan, no goal to be reached. The budget and personnel have been used as examples of opportunities for a dietitian to use her natural ability and training because to many, these seem the worst problems. Diet therapy and nutrition instruction in clinics and schools of nursing provide ample scope for good planning, for advanced study, for service to others. The same principle carries through in these sections of dietetics. The dietitian has specialized training for a job and should use it.

How much creative effort you put into the job—how much you develop as a person—is your measure

of enjoyment of your work. Dietetics is a challenging career. It requires high standards of education and training and a full measure of that intangible quality, personality. In return, it offers qualified dietitians opportunities for professional advancement, for financial security, for individual development.

There will always be good jobs for good dietitians—and just as surely as everyone needs to eat, there will always be problems.

No attempt has been made to discuss all of the questions for your private rating scale, but a few suggestions have been offered for your thinking—suggestions which it is hoped will lead you to the conclusion that being a dietitian can be what you make it—a worrisome job or an interesting career.

CHANGES IN THE ASSOCIATION OFFICE

The Executive Board announces the appointment of J. Hart Rosdail to the position of Accountant and Office Manager in the Association's office. For some time, the members of the Board have been aware that the business operations of the Association have been outgrowing the business organization created almost ten years ago, and Mr. Rosdail's appointment was made in recognition of this fact.

He is a graduate of the State University of Iowa, Phi Beta Kappa, Magna Cum Laude, having majored in commerce and business administration. His previous business experience has qualified him particularly well for the work of the Association office, having included positions with the Continental Illinois National Bank and Trust Company of Chicago, where he served as assistant investment advisor in the Trust Department; Marshall Field and Company, where he acted as office machinery manager and assistant analyst concerned with methods and procedures; and the Continental Casualty Company, Chicago, where he was office manager. Mr. Rosdail is, in addition, widely traveled, not only in this country but abroad, having visited some eighty countries of the globe on bicycle trips which have aggregated approximately 16,000 miles.

His appointment will enable Mildred L. Egeberg, Business Manager, to devote full time to JOURNAL advertising and convention exhibits. For more than five years Miss Egeberg has served as Office Manager and Advertising Manager of the JOURNAL. In addition, last year she assumed the heavy responsibilities of Exhibit Manager for our convention. Since a sizable block of income results from advertising and exhibits, it was the Board's feeling that, in fairness to her, Miss Egeberg's conscientious efforts should not be dissipated by too heavy and diverse a burden of responsibilities, which continue to mount as the Association grows. For this reason, the new position of Accountant and Office Manager, which Mr. Rosdail is now filling, was created in an effort to strengthen our business organization.

Bibliography on Civil Defense for Hospitals

The Division of Hospitals, U. S. Public Health Service, has released the following bibliography on civil defense in the event of atomic attack:

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(2) Survival under Atomic Attack. NSRB Doc. 130. Washington: Govt. Printing Office, 1950; price 10 cents.
(3) BUREAU OF HUMAN NUTRITION AND HOME ECONOMICS and PRODUCTION AND MARKETING ADMINISTRATION: School Lunch Recipes Using Non-Fat Dry Milk. U.S.D.A. Pub. PA-44, 1948.
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Current Comment

RED CROSS REGISTRATION OF NUTRITIONISTS UNDERWAY

PAULINE MURRAH

National Director, Food and Nutrition Service, American Red Cross, Washington, D. C.

Bay waters whipped by high winds had flooded hundreds of families in southern New Jersey out of their small cabins close to the shore. Parents carried their children and waded to dry land in water up to their shoulders. Over seven hundred men and their families, oyster shuckers by trade, found themselves suddenly without shelter and food, and with only the clothes they wore.

Rescuers helped transport these families to an armory in Bridgeton, New Jersey, the nearest large town, where they were fed hot drinks and soup and other nourishing foods. The disaster chairman of the local Red Cross chapter and the volunteers from Motor Service, assisted by the disaster staff from the area office, transported many to the homes of relatives and arranged to set up a shelter for about two hundred of them in barracks that had once housed prisoners of war. Hot, nourishing food was important. The volunteers of the chapter Canteen Service cooked food and brought it to the shelter until a kitchen could be equipped with two stoves, a refrigerator, and a few large cooking utensils.

Simple, hot meals appropriate for children and adults had to be prepared and served regularly. To meet this need, a Red Cross nutritionist, experienced in quantity feeding, organized a food service. Volunteers from among the disaster victims helped clean and establish the kitchen and dining room, and Canteen Service volunteers continued to help with counter service, the cooking, and salad making. Management of the long-term feeding operation was placed in the hands of a full-time food supervisor.

RED CROSS DISASTER FOOD SERVICE

The Red Cross is obligated by its charter from Congress to give care to people affected by natural disaster—fire, flood, hurricane, and tornado. Emergency care, including food, shelter, and clothing, is provided immediately when the disaster strikes.

Providing food is one of the most important tasks the Red Cross undertakes during a disaster. Members of the Canteen Service of the local chapters are remarkable in their ability to make hot coffee and sandwiches ready in the first hours of the emergency to feed sufferers and workers alike. Often these volunteers must be away from their own homes for several days because of the long hours necessary to operate feeding centers. If, however, group feeding must continue for longer than a few days, it is often necessary to organize a regular feeding unit, usually in each shelter, equipped to provide regular meals.

A food supervisor for each mess hall is essential, and the Red Cross has found that dietitians, school lunch managers, and industrial cafeteria managers are well qualified to serve in this capacity, assisted by members of the Canteen Service. For such work, it is necessary not only to know how to plan and order food for large groups but also to be able to adapt to emergency conditions when fuel, water, and equipment may be short.

It is quite evident that members of our profession are ready to serve in the present emergency and also that they foresee shortages of trained workers. Lillian S. Coover, President of The American Dietetic Association, has announced a plan to mobilize former dietitians to work in dietary departments of civilian hospitals, thereby releasing employed dietitians for the armed services. The American Home Economics Association is likewise planning to recruit trained personnel for civilian agencies needing replacements for dietitians and nutritionists who have gone into military service. The American Red Cross through local chapters is assisting with this recruiting program.

THE RED CROSS RECORD

From the beginning of the Red Cross Nutrition Service in 1921, the nutrition committees have depended upon the professionally trained women of the community to serve as nutrition and canteen instructors, advisers, and speakers. Consecutive records for the period from July 1, 1929, to June 30, 1949, show an annual average of 4000 authorizations and reauthorizations of professionally trained men and women as Red Cross nutrition and canteen instructors. Many additional thousands have given their time to serve on chapter committees, develop exhibits, write newspaper columns, and otherwise aid the educational program in nutrition developed for the community through Red Cross.

In one year, 1942–43, almost 20,000 qualified professionals were authorized as nutrition and canteen instructors. Many of these professionally-trained recruits were homemakers or retired persons. At present food and nutrition committees in 1200 chapters and other representatives in additional chapters in

the United States and the insular possessions are actively trying to recruit for canteen instructors, committee members, speakers, and other nutrition-trained workers. Voluntary agencies, including Red Cross, need these nutrition workers not only because of their regular peacetime programs but also to carry their share of the local civil defense program.

RED CROSS IN CIVIL DEFENSE

Red Cross has agreed to assist in the civil defense program. General George C. Marshall last year, when he was President of the American Red Cross, wrote to John R. Steelman, Chairman, National Security Resources Board: "In carrying out the responsibility outlined in this statement ['The Role of the Red Cross in Civil Defense'], the local chapters and the national organization of the Red Cross will cooperate to the fullest extent with local, state, and federal government authorities charged with responsibility for civil defense."

In an address at Cleveland, Ohio, in the fall of 1950, General Marshall said: "It is not beyond our resources or our responsibility to intensify those Red Cross services which would be of major importance to civilian defense. . . . The Nursing and Safety Services must be built up to unprecedented strength. So must Nutrition, which is necessary in Canteen Service and in the emergency feeding of victims of disaster."

The Red Cross has undertaken an extensive training program for civil defense through home nursing, first aid, and volunteer nurse's aide courses. Since groups must always be fed, a basic civil defense need is for volunteers experienced in preparing and serving large quantities of food. Chapters are preparing to train as many adults and high school students to give canteen service under emergency conditions as the local civil defense authorities require. Thus members of Canteen Service, trained by qualified instructors and experienced in a variety of feeding operations, will be well fitted to work together as they prepare and cook food for large groups made homeless by natural or war-caused disasters.

Hospital dietitians, already faced with a shortage in their ranks, may want trained canteen members who can help with food preparation and service. If so, the volunteer canteen members must be given orientation to hospital ethics and routine, as well as to the dietary departments where they are to work.

EXPERIENCED NUTRITIONISTS NEEDED

It has long been evident that many services within the Red Cross organization, in addition to Disaster Services, need the assistance of experienced nutritionists. They have served in the past, but many more are required, and the organization is inviting qualified nutritionists, dietitians, teachers of foods and nutrition, and school lunch and industrial cafeteria managers to register as Red Cross nutritionists. Such qualified workers can serve their communities through their own Red Cross chapters in the regular program and also in its cooperation in civil defense efforts.

The qualifications for registry of a candidate are as follows:

(a) Bachelor's degree from an accredited college or university, with a major in foods and nutrition or institution management, or its equivalent in graduate work.

(b) Experience of at least one year in work in which the candidate's professional training was utilized.

(c) The expressed intention of giving annually at least 20 hr. service to the American Red Cross as a volunteer or paid worker.

All qualified professionals are urgently requested to obtain from their local chapters a copy of the application (Form 303, Rev. 3–51), fill it in, and return it to the chairman of the local chapter. This record of the candidate's training and experience will be reviewed in the chapter and also by the area director of Food and Nutrition Service, who is herself a qualified nutritionist or someone designated by her. On acceptance, a registry card will be sent to the candidate. A wing-shaped, blue enamel pin, as well as special epaulets for the Red Cross uniform, will serve to identify Red Cross nutritionists.

Registered nutritionists may serve their local community and their Red Cross chapter in one or more types of activity. The application provides opportunity to indicate in what type of service the person is most interested. For example, a nutritionist experienced in quantity feeding is needed on the chapter's disaster subcommittee on food. This subcommittee is responsible for all mass feeding during disasters. A dietitian is a valuable asset to the disaster subcommittee on medical and nursing aid. As has been said earlier, qualified instructors are required to train volunteers for chapter canteen service, including instruction in mass feeding for civil defense preparations. Food supervisors are essential in any mass feeding operation, regardless of whether 200 or 6000 are to be fed.

Each chapter's food and nutrition committee is expected to have at least one professionally trained member who is designated a technical adviser. Nutritionists who know family food problems and local food costs are needed to assist the social welfare workers of the chapter with budget problems and special diets for servicemen and veterans and their families. Junior Red Cross is seeking aid with its total health education program, of which nutritional education is an important part.

Serving the community through organized groups has proved an effective American way. The Red Cross, a voluntary agency, invites nutritionists of whatever specialized field, to serve their own communities through their local chapters.

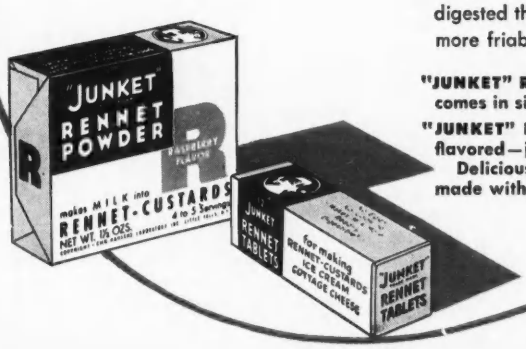
GIVING MILK THE GREEN LIGHT!

WHEN MILK IS A VITAL PART of the daily regimen, such as in infancy, childhood, pregnancy, and for gastro-intestinal, postoperative and geriatric conditions—a serious aggravation of the dietary problem may occur for those patients who (either for physiologic or psychologic reasons) are unable to ingest this essential nutrient.

In such cases, the *red light* of milk refusal may be quickly changed to the *green light* of eager acceptance—by transforming the liquid milk into deliciously flavored, tasty rennet desserts, through the medium of rennet powder or household rennet tablets.

Young and old alike relish these temptingly smooth custard-like desserts which incorporate the uncooked milk — with all nutritional factors unchanged — into a variety of delicious, colorful rennet desserts. They're so simple to prepare—and are more easily digested than milk itself, because of the softer, more friable curds formed in the stomach.

"JUNKET" is the trade-mark of Chr. Hansen's Laboratory, Inc., for its rennet and other food products, and is registered in the United States and Canada.



"JUNKET" RENNET POWDER — already sweetened — comes in six popular flavors;

"JUNKET" RENNET TABLETS are not sweetened or flavored—just add sugar and flavor to taste.

Delicious, highly acceptable rennet desserts may be made with either.

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Current Literature

Contributed by Mildred Bonnell and administrative interns, University of Washington, Seattle; Minnie B. Brandt, University of Chicago; Janette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital, Baltimore; Margaret Delaney, American Institute of Baking, Chicago; dietary staff, Wesley Memorial Hospital, Chicago; Elva Hiscock, University of Illinois College of Medicine, Chicago; Pauline Kegereis, The Children's Mercy Hospital, Kansas City, Missouri; Berdena Rosenow, University of Kansas Medical Center, Kansas City, Kansas; Marion Straube, University of Chicago Clinics; and the Journal staff

THE AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 18, March, 1951

* The determinants of the food intake. J. Hoelzel.—p. 96.

Determinants of Food Intake. An analysis of the determinants of the food intake is made on the basis of the author's personal experience in trying to control his own food intake. Hunger and appetite are distinguished as factors serving different functions in the food intake. Hunger was found to be apparently of central origin and based on needs, but it was also influenced considerably by gastrointestinal conditions. Hence, it is suggested that a distinction be made between central hunger and gastrointestinal hunger. Appetite is regarded as involving chiefly peripheral reactions, such as mouth-watering, and actual or imagined contact with foods, and a distinction is made between a basal appetite determined by needs and an acquired appetite conditioned by nature of some foods. The importance of innate factors as determinants of the food intake rather than learning is emphasized.

AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY

Vol. 61, February, 1951

* The placental metabolism of vitamin A. A. C. Barnes.—p. 368.

Vol. 61, March, 1951

* Iron metabolism in human pregnancy as studied with the radio-active isotope, Fe^{59}. P. F. Hahn, E. L. Crothers, W. J. Darby, M. Martin, J. C. Peterson, C. W. Shepard, R. O. Cannon, A. S. Dean, P. M. Densen, and J. S. McClellan.—p. 477.

Placental Metabolism. From a detailed study of the maternal-placental-fetal metabolism of carotene and vitamin A, it has been concluded that the principal transfer to the fetus takes place in the form of carotene. The fetal system then converts the carotene to vitamin A and stores it in high concentrations in the liver. Intrauterine vitamin A deficiencies would seem to result either from long-standing maternal deficiencies of carotene or from failures in the regulatory mechanism which controls fetal conversion of carotene to vitamin A.

Iron Metabolism. Iron tagged with a radioactive isotope was fed in single doses, ranging from 1.8 to 120 mg., to 466 women at various stages of pregnancy, and the uptake of iron was determined. As the dosage was increased from 9 to 18 mg. and beyond, the percentage of the total dose of iron found in the maternal red cells decreased, although the actual amount of iron taken up increased from the lowest to the highest dose. As gestation progressed, the uptake of iron increased to the extent that at thirty weeks' gestation, three or more times as much iron was absorbed as during the period before the fifteenth week. There was no correlation between the percentage of iron taken up and the intake of calories, protein, iron, calcium, phosphorus, vitamin A, ascorbic acid, thiamine, niacin, or riboflavin. The red blood cell mass of the newborn infant contained on the average about 10 per cent as much of the administered iron as that of the mother.

ANNALS OF INTERNAL MEDICINE

Vol. 34, January, 1951

* Obesity in diabetes. A study of therapy with anorexigenic drugs. K. E. Osserman and H. Dalger.—p. 72.

Obesity in Diabetes. An investigation was undertaken to study the effect of anorexigenic drugs upon obese diabetic individuals. Thirty-six of fifty-five obese diabetic patients exhibited significant losses of weight (11 to 77 lb.) on low caloric diets aided by anorexigenic drug therapy. *Dl*-amphetamine and *d*-amphetamine sulphate had no direct effect upon the improvement of carbohydrate tolerance, but only an indirect one, through caloric restriction leading to weight loss.

ARCHIVES OF INTERNAL MEDICINE

Vol. 87, January, 1951

Radioactive iodine in the treatment of hyperthyroidism. E. P. McCullagh and C. E. Richard.—p. 4.

* Essential hyperlipemia. E. R. Movitt, B. Gerstl, F. Sherwood, and C. C. Epstein.—p. 79.

Vol. 87, February, 1951

Combined administration of desoxycorticosterone acetate and ascorbic acid. C. A. Schaffenburg, J. B. R. McKendry, and E. P. McCullagh.—p. 190.

Essential Hyperlipemia. The literature on essential hyperlipemia is reviewed. Three cases were added to the fourteen previously reported cases. The condition was defined as a disorder of fat metabolism of undetermined origin, characterized by hyperlipemia of the retention type. The only successful treatment presented was a drastic reduction in fat intake.

BULLETIN OF THE JOHNS HOPKINS HOSPITAL

Vol. 88, March, 1951

* Myocardial, hepatic and renal damage resulting from para-aminobenzoic acid therapy. A. H. Cruickshank and G. W. Mitchell, Jr.—p. 211.

Para-Aminobenzoic Acid Therapy. In two cases of acute rheumatic fever and one of arthritis of undetermined nature, large doses of para-aminobenzoic acid were administered. Extreme deposits of fat in the epithelial cells of the liver, kidney, and the myocardium were found at autopsy. These lesions were believed to have been caused

Nutritional Status...

AN IMPORTANT FACTOR IN OLD AGE

A RECENT study[1] of the health and nutritional status of 200 elderly patients and their dietary habits revealed their food intake to be deficient in iron, calcium, protein, and, particularly, B complex vitamins. In many instances the lassitude and premature weakness of the elderly are due to such deficiencies.

Correction by increased intake of ordinarily eaten foods often proves difficult. The quantities that would have to be eaten frequently are more than the individual can consume comfortably.

Ovaltine in milk—a tasty, readily accepted and easily digested food supplement—offers a simple solution to this problem. Its wealth of biologically adequate protein, quickly utilizable carbohydrate, and needed vitamins and minerals, serves well in the aim of bringing nutrient intake to optimal levels.

The nutritional contribution of three servings of Ovaltine in milk (the recommended daily amount) is defined in the appended table.

1. Bortz, E. L.: Management of Elderly Patients, Postgraduate Med. 3:186 (Mar.) 1950.

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Ovaltine

Three servings of Ovaltine, each made of
½ oz. of Ovaltine and 8 oz. of whole milk,* provide:

PROTEIN	32 Gm.	VITAMIN A	3000 I.U.
FAT	32 Gm.	VITAMIN B_2	1.16 mg.
CARBOHYDRATE	65 Gm.	RIBOFLAVIN	2.0 mg.
CALCIUM	1.12 Gm.	NIACIN	6.8 mg.
PHOSPHORUS	0.94 Gm.	VITAMIN C	30.0 mg.
IRON	12 mg.	VITAMIN D	417 I.U.
COPPER	0.5 mg.	CALORIES	676

*Based on average reported values for milk.

Two kinds, Plain and Chocolate Flavored. Serving for serving, they are virtually identical in nutritional content.

by the para-aminobenzoic acid, and this was confirmed by the production of fatty changes in the liver, kidney, and heart of rabbits to which the drug was administered. The use of large doses of para-aminobenzoic acid in therapy is not without danger.

ENDOCRINOLOGY

Vol. 48, February, 1951

* The influence of sex and of testosterone upon fatty liver due to ethionine. E. Farber, D. Kock-Weser, and H. Popper.—p. 205.

Fatty Liver Produced by Ethionine. A sex difference in the occurence of fatty liver and bromsulfalein retention produced by ethionine in rats has been demonstrated, the males being refractory. Testosterone propionate protected both females and castrated males against fatty infiltration. The sex difference appears to be due to the androgens. Sex differences have been associated with the protein-sparing effect of testosterone, and a possible relationship between methionine and testosterone is suggested.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 145, March 17, 1951

* Present day management of amebiasis. J. A. Bargen.—p. 785.
* Infections with multiple Salmonella types, including *S. braenderup*. Results of chloramphenicol treatment. H. A. Weiner and J. B. Liebler. —p. 802.
* Nutrition and goiter. Editorials and Comments.—p. 824.

Pituitary adrenocorticotropic hormone and scurvy. Editorials and Comments.—p. 825.

* Evaluation of signs of deficiency diseases. Editorials and Comments.—p. 826.

Vol. 145, March 31, 1951

* Intravenous fructose feeding. Editorials and Comments.—p. 987.

Vol. 145, April 7, 1951

*Colostrum antibodies. Editorials and Comments.—p. 1070.
* Diet in pregnancy. Queries and Minor Notes —p. 1108.

Management of Amebiasis. Patients suffering from chronic amebiasis can and do transmit the disease. It is commonly transmitted by food, food handlers, water, and insects. It has been estimated by surveys that amebiasis occurs in 5 to 10 per cent of the U. S. population.

Infections with Multiple Salmonella Types. Salmonella has a world-wide distribution. In this article twenty case histories are presented. Organisms have been isolated from forty-seven animal species, including reptiles, fowl, and lower mammals, as well as from man. They have also been found in water, sewage, eggs, egg powder, and a wide variety of food products. All Salmonella are potentially pathogenic for both man and animals. Unfortunately, though meat inspection is widespread in the U. S., only 5 to 7 per cent of the poultry is inspected.

Nutrition and Goiter. Studies of the goitrogenic power of vegetables and seeds of the Brassicaceae family (cabbage, turnip, rutabaga, kale, rape, and the mustards) on animals are reviewed, along with some studies made on human beings. Attention is called to the fact that where the studies were made with human beings, there was not complete control and that other nutritional derangements had occurred. This was true in portions of Europe during the war where people subsisted on diets high in cabbage, turnips, and related substances. It was decided that the goitrogenic power of such vegetables on man has not been established. Nevertheless, in cases where goiter was reported to occur, the diet consisted largely of the plants reported to be goitrogenic in animals. Further study of the problem is indicated.

Signs of Deficiency Diseases. Recent surveys have shown that previous claims of widespread nutritional deficiencies do not always bear up under sound medical appraisal. Physical signs are of limited value in detecting nutritional deficiency diseases; they should be supplemented by other physical findings, the dietary and medical histories, laboratory studies, and therapeutic tests.

Intravenous Fructose Feeding. Evidence has shown that fructose is more rapidly converted into hepatic glycogen than is glucose. The resultant lower degree of glycosuria is desirable.

Colostrum Antibodies. In reviewing an animal experiment at the University of Minnesota, the summary states that colostrum antibodies probably play a relatively less prominent role in man than in some animals.

Diet in Pregnancy. A daily diet for a pregnant woman is given in this note. It is pointed out that there is considerable difference of opinion as to what constitutes a proper diet. Excessive amounts of sodium are considered distinctly harmful in pregnancy.

THE JOURNAL OF CLINICAL INVESTIGATION

Vol. 30, March, 1951

* Adrenocortical control of sodium and potassium excretion in the newborn period. R. Klein.—p. 318.

Sodium and Potassium Excretion in Newborn Infants. Twelve newborn infants were given ACTH for a period of one to ten days. This was regularly accompanied by the expected increase in the excretion of neutral reducing lipid 17-ketosteroids and urinary nitrogen. The urinary excretion of potassium showed only moderate changes, usually increasing on the day of ACTH injection as expected from adult experience. Sodium excretion was always increased on the day after adequate dosage of ACTH was given. This frequently was of sufficient magnitude to exceed dietary intake of the ion. One six-month-old infant retained sodium after ACTH administration in the manner of adults. In one newborn, 25 mg. cortisone produced sodium retention; 50 mg. cortisone given to another newborn produced no effect on sodium balance.

JOURNAL OF HOME ECONOMICS

Vol. 43, March, 1951

Food choices of Nebraska children. R. M. Leverton and M. C. Coggs.—p. 176.

* Federal bread standards discussed. P. B. Dunbar, C. M. McCay, and W. B. Bradley.—p. 179.

Federal Bread Standards. A symposium is presented on the proposed federal bread standards. Three differing points of view are found in the discussions of the three authors: P. B. Dunbar, who is Commissioner of Food and Drugs, Federal Security Agency; C. M. McCay, who is a Research Professor of Nutrition, Cornell University; and W. B. Bradley, who is the Scientific Director, American Institute of Baking, Chicago.

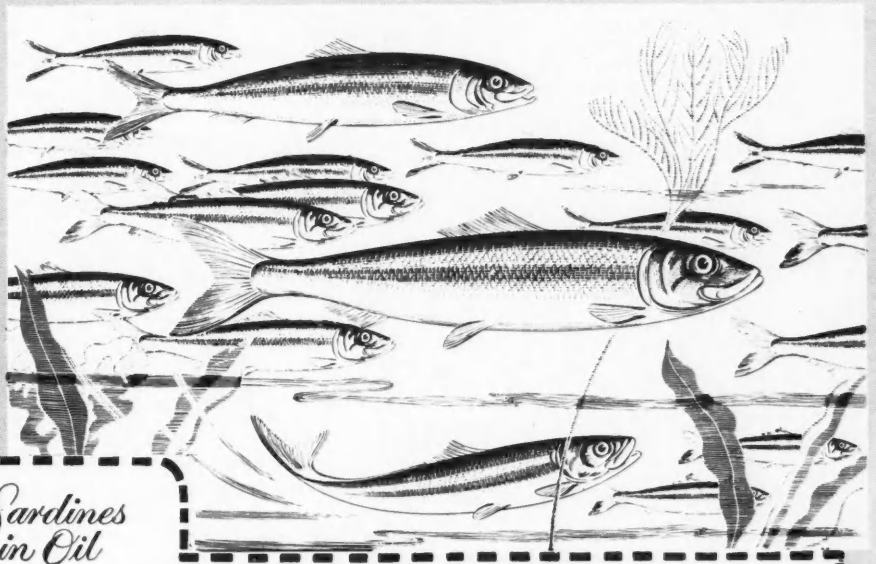
THE JOURNAL OF PEDIATRICS

Vol. 38, March, 1951

* Clinical study in man of the effect of variation of agenized flour products in the diet. M. W. Laufer, E. Denhoff, F. Giunta, D. V. Tramonti, and E. P. Hardy.—p. 341.

Effects of Agenized Flour. The results of a study indicated no significant changes in children when agenized flour products were withdrawn from the diet or reintroduced. This correlates well with the negative results in human beings found in the complementary study of Newell *et. al.* in which agenized materials were fed in excessively high quantity. Although laboratory studies during the first cycle were suggestive of some possible relationship of agene and protein metabolism, failure to duplicate

For your food file—interesting facts on canned sardines in oil



Sardines in Oil

Nutritive value in average* serving of canned sardines in oil

Nutrient	Quantity	Approximate Percentage of Daily Recommended Allowance**	Approximate Percentage of Minimum Daily Requirement***
Carbohydrate (available) (1)	0.29 gm.	—	—
Fat (1)	13.0 gm.	—	—
Protein (1)	11.7 gm.	17	—
Caloric Value (1)	168 calories	6	—
Calcium (1)	212 mg.	21	28
Phosphorus (10)	260 mg.	—	35
Iron (1)	2.1 mg.	18	21
Vitamin A (2, 3)	140 I. U.	3	3
Thiamine (2, 4)	0.011 mg.	1	1
Riboflavin (5, 6)	0.098 mg.	5	5
Niacin (4, 6)	2.8 mg.	19	—
Vitamin D (7)	160 I. U.	40	40

*60 grams **Percentage based on Recommended Daily Allowance for physically active man—National Research Council. ***Percentage based on Minimum Daily Requirement for adult over 12 years of age—Food and Drug Administration.

1. Food Research *11*, 391 (1946)
2. J. Am. Dietet. Assoc. *23*, 226 (1947)
3. J. Nutrition *28*, 107 (1944)
4. J. Nutrition *28*, 117 (1944)
5. J. Nutrition *28*, 123 (1944)
6. J. Am. Dietet. Assoc. *21*, 357 (1945)
7. J. Nutrition *34*, 633 (1947)

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these findings during the second cycle may point to a seasonal variation in protein, since there was no correlation between the fall of protein and the diet. Also, there was no evidence that agene affected the body chemistry, since during the agene-free period there were no consistent alterations in normal laboratory values.

NEW ENGLAND JOURNAL OF MEDICINE

Vol. 244, March 8, 1951

* The caries-producing effect of similar foods growing in different soil areas. A. E. Nizel and R. S. Harris —p. 361.

Caries-Producing Effect of Similar Foods Grown in Different Soil Areas. A statistically significant higher incidence of dental caries has been produced in hamsters fed diets containing corn and dried whole milk produced in New England in comparison with those fed similar food grown in Northwest Texas. It appears that the caries-promoting property of the New England foods outweighed any caries-inhibitory property of the Texas corn and milk, and that a mechanism operated in the New England foods that aided materially in production of dental decay. It may be suggested that these results are due to differences in fluorine content of the foods.

PUBLIC HEALTH REPORTS

Vol. 66, February 16, 1951

Survey of brucellosis in slaughtered hogs. N. B. McCullough, C. W. Eisele, and E. Pavelchek.—p. 205.

Vol. 66, March 9, 1951

* Health department assistance in nutrition education in elementary and secondary schools. F. E. Whitehead and F. J. Stare.—p. 306.

Vol. 66, March 16, 1951

Studies to formulate new media for the standard plate count of dairy products. L. Buchbinder, Y. Baris, E. Alff, E. Reynolds, E. Dillon, V. Pessin, L. Pincus, and A. Strauss.—p. 327.

Nutritional Education in Elementary and Secondary Schools. Some of the assistance now being given by health departments to nutritional education in school programs includes services of nutritionists, nurses, sanitary engineers, medical social workers, dentists, health educators, laboratories, and physicians. Service given by the public health nutritionists is only one of many in the total nutritional program, yet it is very important. It may take effect through teacher-training activities, such as conferences, workshops, and group discussions in both preservice and inservice teacher-training programs. The nutritionist is regarded as a resource person and technical advisor who helps school personnel keep up to date on nutritional information, films, books, pamphlets, and effective ways of using these and other media in nutritional education. Nutritional education in schools offers educational opportunities unequaled by any other single program within the health department.

SCIENCE

Vol. 113, March 23, 1951

* Effect of ACTH and some adrenocortical steroids on the metabolism of tyrosine and phenylalanine in premature infants. S. Z. Levine, H. L. Barnett, C. W. Bierman, and H. McNamara.—p. 311.

Metabolism of Tyrosine and Phenylalanine in Premature Infants. In 1939, it was found that premature infants receiving high-protein diets devoid of ascorbic acid had a specific defect in the metabolism of tyrosine and phenylalanine, which was manifested by urinary excretion of the tyrosyl derivatives. Administration of ascorbic acid promptly abolished the defect. In this study it was found that ACTH given in adequate dosage over a sufficient period of time abolishes this defect in the aromatic amino acid metabolism. The mechanism of ACTH remains obscure.

SOUTHERN MEDICAL JOURNAL

Vol. 44, March, 1951

* Undetected diabetes among relatives of diabetics. An epidemiologic note. M. J. Ford and B. Glenn.—p. 239.

Undetected Diabetes among Relatives of Diabetics. A diabetes demonstration unit was founded in 1947, in Jacksonville, Florida, to explore methods of diabetes control in a community. Through the testing program a group in the community was defined in whom diabetes is especially prevalent: the relatives of diabetic individuals. During a three-year period, 1941 relatives of diabetics were given laboratory tests for diabetes. As a result, 73 new cases of diabetes were discovered or 4.2 per cent. Diabetes was prevalent both among males and females in the group, also among both whites and Negroes examined. The percentage of diabetic cases detected among the relatives of diabetics was found to be about five times higher than the percentage found in general population groups. The public health value of the finding lies in the knowledge that concentrated efforts among this group will yield definite achievement in the field of preventive medicine.

SURGERY, GYNECOLOGY, AND OBSTETRICS

Vol. 92, February, 1951

* Fats in parenteral nutrition. F. J. Stare and R. P. Geyer.—p. 246.

Fats in Parenteral Nutrition. Though not yet commercially available, fat emulsions will provide 1500 to 3000 calories in a fluid volume of 1 liter. The advantages of fat over carbohydrate or protein as a parenteral source of calories are that it provides 9 calories per gram rather than 4, it is not excreted by the kidney or in the feces, and it is not irritating to the vein. After extensive studies in animals, emulsions of 15 per cent fat and 4.3 per cent dextrose have been used successfully in more than a hundred patients and two normal volunteers.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 10, March, 1951

Adequate cost control depends on proper food buying procedures. J. H. Dewberry.—p. 45.

* Operating a college snack bar.—T. Thompson.

Food service requires adequate cash control technics. H. O. Molitor.—p. 48.

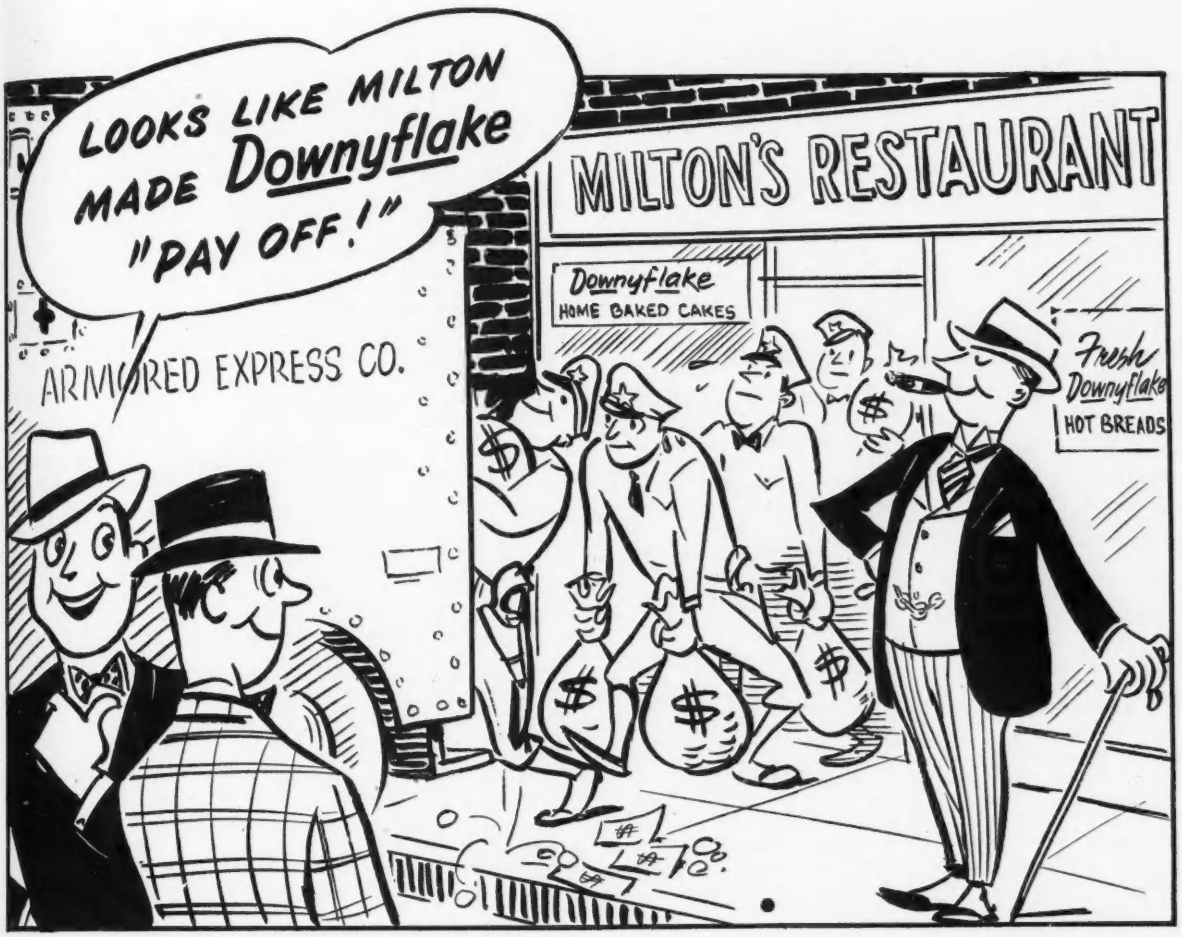
College Snack Bar. Consideration is given to the location, size, physical aspects, equipment, and operation of a college snack bar. The article describes the development of snack bars at the University of Kentucky.

FOOD INDUSTRIES

Vol. 23, March, 1951

* Fungal enzymes help you make better bread. Part I. J. A. Johnson and B. S. Miller.—p. 80.

Fungal Enzymes in Bread. New standards of identity for bread, proposed by the Federal Secruity Agency, provide that enzyme preparations from the fungus, *Aspergillus oryzae*, may now be added to doughs. Greater loaf volume and improved crumb characteristics are obtained, since these new supplements enable control of enzymic activity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and dough consistency. Methods of adding the fungal-enzyme supplements are described.

FOOD PROCESSING

Vol. 6, March, 1951

* Margarine manufacturers propose increase in vitamin A content to match new findings on butter.—p. 8.
* Vacuum dried fruit with only 1% moisture has superior keeping qualities.—p. 18.

Vitamin A Content of Margarine. The margarine manufacturers' have proposed that the standard vitamin A content of margarine be increased to 15,000 I.U. per pound, instead of the present 9000. The proposal is based on a recent finding that butter has more vitamin A than the level set in 1941.

Vacuum-Dried Fruit. A process by which fruits are dehydrated and vacuum packed facilitates greater storage capacity over a longer period of time plus quick, easy hydration with minimum loss of flavor. Fruit, including apples, apricots, peaches, prunes, dates, and figs would be of value in bakeries and institutions in the preparation of desserts. The name and address of the packer is listed together with sources of information.

FORECAST FOR HOME ECONOMISTS

Vol. 67, March, 1951

* Promote a better understanding of nutrition now. W. V. Tinsley.—p. 30.

Vol. 67, April, 1951

* Teaming up teachers . . . nutrition-wise. W. V. Tinsley.—p. 18.

Promoting Nutrition. The teacher's role in promoting better nutrition is shown. Stress is placed on a survey of food habits and what may be gained by taking such surveys.

Teaching Nutrition. Working as a team, the homemaking teacher and the elementary teachers can make nutrition a fascinating and worthwhile experience for boys and girls. Steps to take in effecting a successful working relationship are listed.

HOSPITAL MANAGEMENT

Vol. 71, January, 1951

The case for portion ready meats in hospital food purchasing. J. N. McGinnis.—p. 98.

Vol. 71, February, 1951

* How to maintain control over meals served to non-patients.—p. 84.

Controlling Meals of Non-Patients. Recent surveys have disclosed the need for effective control over meals served to non-patients (students and graduate nurses, technicians, and office, building, and grounds employees). Three methods of control are described: (a) the money scrip method, (b) ticket control for designated meals, and (c) punch-out control for designated meals.

INSTITUTIONS MAGAZINE

Vol. 28, March, 1951

* University research analyzes labor, food relationship.—p. 2.
* Frozen meat for fresh service.—p. 13.
* Food service design.—p. 67.
* Quats unique among germicides.—p. 104.

Food Service Efficiency Research. A food service manager must understand and control three basic food costs which are: food, labor, and operating expenses. John F. Johnson of the University of Chicago made a statistical analysis of the labor forces in 171 cafeterias in order to provide cafeteria managers with a tool for measuring labor efficiency. The length of the working day, the efficiency of the layout, and labor-saving equipment indicate the amount of manhour productivity available. Mr. Johnson determined that the average number of patrons per labor hour for the 171 cafeterias was 5.87. In general, as the meals served per month increase, the patrons per labor hour increases.

Frozen Meats. One answer to quick and simplified meat preparation is the frozen, pre-fabricated meat now available for institution use. Pictured and discussed are the various types of meat and methods of serving.

Food Service Design. The Men's Dining Hall at Alabama Polytechnic Institute, Auburn, is featured in this article. The guide for planning and designing food service facilities which was developed by a Food Administration Section committee of A.D.A. was used as the basis for the kitchen planning. These recommendations are listed and accompanied by a description of their adaptation for use in the residence hall situation.

Quaternary Ammonium Germicides. This is the third in a series of four articles for food service managers on the many aspects involved in the control of microorganisms. The characteristics of quaternary ammonium germicides are described; the advantages and disadvantages of these compounds are also discussed.

PRACTICAL HOME ECONOMICS

Vol. 29, April, 1951

* Nutrition high lights. C. B. Clayton.—p. 188.
Flavor is more than taste. P. Appleyard.—p. 189.
Miss 4-H teaches nutrition. R. S. Florea.—p. 190.
* Fats.—p. 191.

Nutrition High Lights. The effects of starvation are discussed with a detailed review of *The Biology of Human Starvation* by Ancel Keys *et al.* Reference is also made to the experimental feeding of enriched white rice in the Philippines.

Fats. The article includes sections on varieties, nutritive value, buying, storage, and cooking uses of fats.

QUICK FROZEN FOODS

Vol. 13, March, 1951

* Waxy rice flour halts pre-cooked sauce curdling.—p. 186.

Frozen White Sauce. A solution to the problem of curdling in white sauces used in frozen foods can be brought about through the use of flour made from waxy or glutinous rice. Tests made by the U. S. Department of Agriculture have shown that sauces made with wheat flour had some separation of liquid after freezing and storage. Mixing three parts of waxy rice flour with two parts of wheat flour has given a satisfactory sauce, provided the sauce is homogenized.

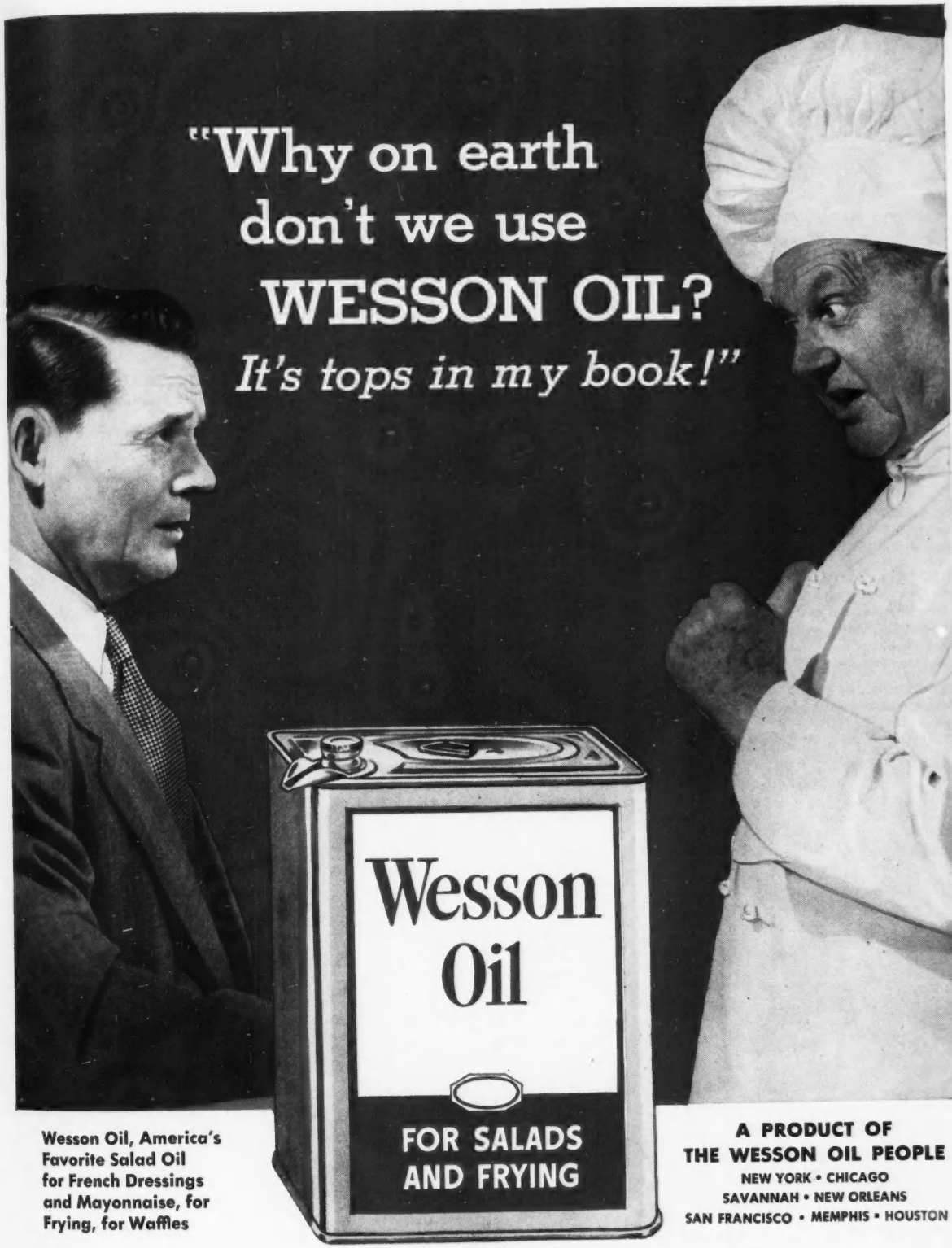
RESTAURANT MANAGEMENT

Vol. 68, March, 1951

* Preparing and packaging fried chicken for on-premise and home consumption. H. Mehline.—p. 29.
* Making maximum use of ground and utility meat. A. Easton.—p. 40.
Hot breads for brunch. M. L. Casteen.—p. 44.

Preparing Fried Chicken. This article emphasizes the importance of standardizing a food product if it is to be successful. The product, in this instance, is fried chicken, as prepared and sold in restaurant operations in Seattle and Tacoma, Washington. The pre-cook and fry-off methods of cooking are described.

Use of Ground and Utility Meat. Suggestions are given for greater use of ground meat. Variations of hamburger are suggested, and combination meat dishes are listed.



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News Notes

Historical Materials Wanted. The History Committee, A.D.A., needs many things to make the written History of The American Dietetic Association complete; particularly the following items:

(a) Programs, daily bulletins, and menus from the annual meetings from 1917 through 1942, especially 1918, 1922, 1931, and 1934.
(b) Bulletins of 1923 and 1924 which were forerunners of the JOURNAL.
(c) Tenth anniversary (1927) material.
(d) Twenty-first anniversary (1938) material.
(e) Old photographs, newspaper clippings, photographs or programs of graduating classes of student dietitians and dietetic interns, snapshots taken at any convention, photographs of dietitians during both wars, and any copies of the early versions of the Constitution and By-Laws.

If you have any of the above materials, or anything that you feel would be pertinent to the A.D.A. history, it would be much appreciated if you would send them to: Anna Boller Beach, Chairman, History Committee, A.D.A., 198 Woodside, Riverside, Illinois.

Dr. Bryan Honored. On April 20, a portrait of Mary deGarmo Bryan was presented to Teachers College, Columbia University at a tea. The portrait was made possible through contributions of former students and associates of Dr. Bryan. The presentation was made by Frances Livingston Hoag, Supervisor of School Lunch, State of Pennsylvania, and the portrait was accepted by President Russell of Columbia University on behalf of the trustees. Lenna Cooper also presented to Dr. Bryan a leather bound book containing a color photograph of the portrait and the names of all those who participated in honoring her.

Mrs. Martin Retires. Ethel Austin Martin, Director, Department of Nutrition Service, National Dairy Council, retired on June 1 after twenty-two years of service. In 1949, Mrs. Martin was chosen as one of ten U. S. delegates to the Twelfth International Dairy Congress in Sweden, only one other delegate being a woman. She has also served as a member of the U.S.D.A. Advisory Committee on Food and Nutrition. Articles by Mrs. Martin have appeared in the *American Journal of Public Health*, *Today's Health*, *Journal of Home Economics*, and in this JOURNAL, as well as the dairy trade press. Mrs. Martin has for many years been an active member of A.D.A., and is currently a member of the Association's Investigation Board.

Under Mrs. Martin's guidance, the Department of Nutrition Service began functioning as two separate departments on February 1 of this year, with Elizabeth Beyer directing a Department of Materials Development Service, and Zoe Anderson, Ph.D., directing a Department of Research and Nutrition Service.

Tri-State Hospital Assembly. The 21st Annual Tri-State Hospital Assembly was held in Chicago, April 30, May 1 and 2. The session for dietitians on May 2 was jointly sponsored by the Illinois, Michigan, Indiana, and Wisconsin Dietetic Associations. It began with a panel discussion on "The Contribution of the Dietetic Department as a Major Professional Service in the Operation of the Hospital." Six speeches on this topic were presented, as follows:

"Its Place in the Organization of the Hospital" by Joseph G. Norby, Administrator, Columbia Hospital, Milwaukee, and Catherine Coffey, Director of Dietetics, Columbia Hospital

"Its Part in the Professional Care of the Patient" by Dr. Robert F. Brown, Medical Director and Assistant Administrator, St. Luke's Hospital, Chicago, and Elmira Blecha, Diet Therapy Clinic, University Hospital, Ann Arbor, Michigan

"The Financial Management of the Department" by Ray E. Brown, Superintendent, University of Chicago Clinics, and Ella Marie Eck, Chief Dietitian, University of Chicago Clinics

The second part of the session also covered administrative aspects of the dietary department, with the following talks:

"Is the Organization, Planning, and Operation of the Dietetic Department Meeting the Needs of the Hospital?" by B. D. Dann, Superintendent, Hackley Hospital, Muskegon, Michigan

"Are You Having Trouble with Your Dietary Costs?" by Fern Gleiser, University of Chicago

Foreign Intern Aided. The sisterhood of P.E.O. this year is helping a foreign student complete her dietetic internship in New York City through a gift of $350.

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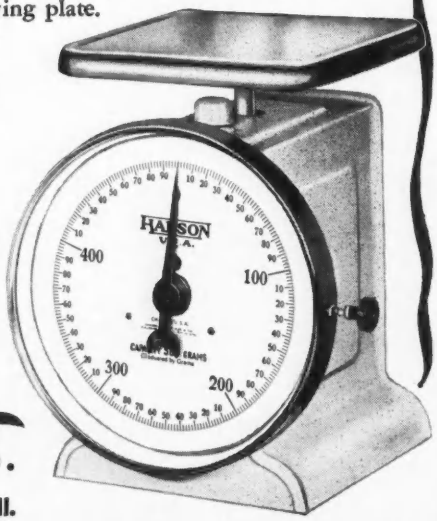

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Anna W. Janzen. Anna W. Janzen, Director, University of Texas Commons, passed away March 22 in Austin. Miss Janzen, an A.D.A. member since 1930, had been Associate Professor of Home Economics at the University for twenty-seven years.

Marie Sherwood. Word has been received in the A.D.A. office of the death of Marie Sherwood on January 15 in Cleveland. Miss Sherwood was employed by the East Ohio Gas Company at the time of her death. She had also been on the staff of University Hospital, Cleveland, where she was Administrative Dietitian, and had served as Therapeutic Dietitian, Flower Hospital, Toledo.

Meetings. Dates for the annual convention of the *American Medical Association* in Atlantic City are June 11 to 15.

The *American Home Economics Association* will meet in Cleveland, June 26 to 29.

St. Louis will be the scene of the *American Hospital Association* convention, September 17 to 21.

The *American Public Health Association* will meet in San Francisco, October 29 to November 2.

The 1951 conference of the *School Food Service Association* will be held at the Statler Hotel, New York City, November 12 to 14.

News of State Associations

Arkansas Dietetic Association. The annual meeting of the Arkansas Dietetic Association was held at Hot Springs on May 15. The program included talks by Dr. H. King Wade on "Diet in Renal Disease" and by Dr. A. H. Ferguson on "The Importance of the Dietitian on the Hospital Team." Frances Welch, Director of School Lunchrooms, Dallas Independent School District, spoke on Association affairs and later gave a talk titled "Dietitians, What Are They Up To?" Mary Harman Riste, Chief Dietitian, Butterworth Hospital, Grand Rapids, Michigan, presented pictures and commentary on tray service.

In April the Association's meeting at Fort Roots featured Dr. Charles Rayburn who spoke on dietary treatment of psychiatric patients. A working conference for food managers was held March 14 at Drew County Hospital, Monticello.

California Dietetic Association. Two programs were presented for the Dietetic Section of the meeting of the Association of Western Hospitals, held in Los Angeles on May 1. At the first session, Dr. Louis Block, U. S. Public Health Service, Washington, spoke on "Food Cost Control." At the second, a panel discussion on "Dietary Consultants in Small Hospitals and the Community" was presented, with the following participants: Helen E. Walsh, Chief, Nutrition Service, California Department of Public Health; Margaret Gillam, Dietetics Specialist, American Hospital Associa-

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tion; Alden Mills, Administrator, Huntington Memorial Hospital; and Dolores Nyhus, Dietetic Consultant, California Department of Public Health.

The California Association is actively coordinating work on mobilization. A state chairman has been appointed as well as six area chairmen to study the problem in Los Angeles, Santa Barbara, Fresno, Sacramento, San Diego, and San Francisco.

The *Los Angeles Section's* March meeting was a dinner held in New Chinatown. Guest of honor was Mable MacLachlan, Educational Director, A.D.A., who discussed mobilization, the need for recruiting in schools, delegation of dietitians' duties, and the organization of the Chicago office. In February, the group met at Mercy Hospital to hear a representative of the Dohrmann Hotel Supply Company talk on new equipment.

The *Central Valley Section* in January met at the Fresno General Hospital. Dr. Leo Goodman spoke on "Medical Aspects of Diabetes." This was followed by a panel discussion of calculation of diabetic diets.

Connecticut Dietetic Association. The spring meeting of the Connecticut Dietetic Association was held in Hartford, March 27. Margaret Gillam, Dietetics Specialist, American Hospital Association, spoke on "Choosing and Placing Equipment for New Departments," and Dr. Norman Moore, Cornell University, discussed the importance of doctor-nutritionist relationships. The Association is making plans to establish a loan fund to assist a prospective dietetic intern from Connecticut. A committee to investigate the various types of loan funds, has been appointed and the Executive Board has approved a sum of $100 to be set aside for the loan fund.

In Connecticut, a Nutrition Service Advisory Committee for Civilian Defense, under the Health Services Division, has been established. Helen J. Phaneuf, Connecticut State Health Department, is serving as chairman, of the group in which are represented the following organizations: the Connecticut Dietetic Association, the Connecticut Home Economics Association, the Connecticut State Department of Education and School Lunch, and the Connecticut Nutrition Council. The Red Cross has also been invited to have a representative on the committee. The purpose of the committee has been stated as follows: (a) to recommend for the guidance of emergency welfare services, types and amounts of food of minimum nutritional adequacy which should be available for temporary feeding in time of disaster; (b) to recommend a system of priorities for foods of high nutritive value which may be in limited supply, i.e., milk, infant foods, citrus fruit; (c) to suggest safe substitutes for scarce foods; (d) to make periodic checks on the adequacy of the feeding program, especially during and after a prolonged emergency and to recommend remedial action if necessary; and (e) to recommend educational activities. The first two projects of the committee will be to help in recruiting nutrition and food service personnel for disaster area teams and to recommend types and quantities of food which should be stored in shelters per thousand people.

Illinois Dietetic Association. The spring meeting of the Illinois Dietetic Association was held on the day following the close of the Tri-State Hospital Assembly in Chicago, May 3. The program included:

"Teaching Nutrition by Group Dynamics" by Mary Brakel

"Prevention of Tooth Decay" by James Blayney, D.D.S.

"Modern Concepts of Infant Feeding" by Helen Heinen, M.D.

"Use of ACTH in the Treatment of the Collagen Diseases" by David Markson, M.D.

"Echoes of the Midcentury White House Conference on Children and Youth"—a discussion by Mary Reeves, Louise Majonnier, Beth Perkins, and Edward Press, M.D.

As part of its vocational guidance program of informing more students about dietetics, the Illinois Association has conducted an essay contest on "Dietetics—A Career for Better Living." All Future Homemakers of America in the state were eligible to enter. A letter announcing the essay contest was sent to each of the 604 vocational homemaking teachers in the state, and some 65 schools responded. About 400 students submitted entries. Three cash prizes were offered as follows: first, $75; second, $50; and third, $25. There were also four honorable mention awards. The prize winners were:

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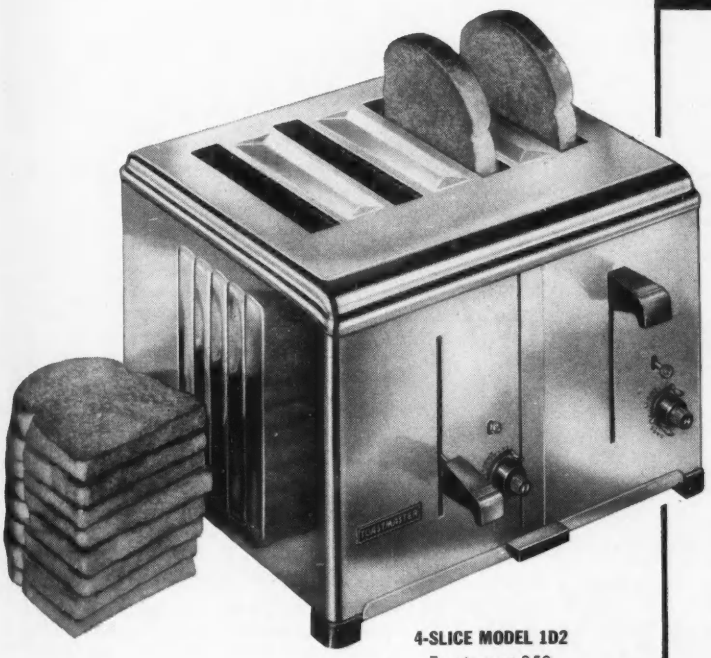

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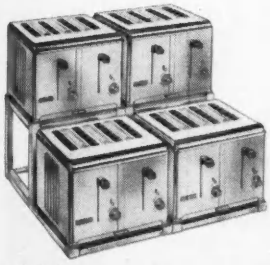

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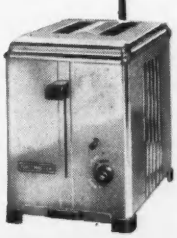

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first, Jean Ashley, Tonica; second, Carledon Kraatz, Ullin; third, Dolly Conklin, Clifton. Those receiving honorable mention were: Catherine Brosher, Cambridge; Barbara Hill, Alexis; Betty Bollin, Nauvoo; and Marilyn Chrisman, Nauvoo. One of the winners was able to attend the luncheon of the Illinois Association on May 3, with her mother, and received her prize in person.

The Professional Education Section of the Illinois Association is sponsoring a workshop June 4 through 8 at the University of Illinois. Topics to be discussed include: "Newer Aspects of Food and Nutrition," "What's New in Quantity Cookery," and "Hints on Employee Training Programs."

Officers for 1951–52 of the *Mississippi Valley Dietetic Association* will be: Chairman, Constance Hilton, Moline Lutheran Hospital; Vice-Chairman, Sister Mary Delores, Marycrest College, Davenport; and Secretary - Treasurer, Shirley Myers, Moline Public Hospital.

Indiana Dietetic Association. The Indiana Dietetic Association held its annual spring convention on April 25 and 26 in Indianapolis.

At the opening luncheon Dr. Margaret Ohlson, President-Elect, A.D.A., reported on Association affairs.

At the afternoon session, the speakers were the following: Barbara Ruby Johnston, University of Chicago Clinics, who talked on "Planning Food for Diabetic Camps"; Dr. Glen Irwin, Indiana University Medical Center, "ACTH and Cortisone Therapy and Its Relation to Diet"; and Dr. B. L. Martz, Eli Lilly Company, "Resin Therapy and Low Sodium Diets."

The following morning, the session was opened by Dr. Ralph McDonald, Children's Clinic, Indiana University School of Dentistry, who spoke on "Nutrition in Dental Health."

A panel on "Newer Fields in Nutrition" completed the morning's program. Panel members were: Marian Jones, Indiana State Board of Health, Indianapolis; Helen Townsend, Purdue University, Lafayette; Kathryn Sheedy, Lilly Laboratory for Clinical Research, Indianapolis Margaret B. Doughty, Bendix Home Laundry Institute, South Bend; Sheila Eldred Henderson, Dairy Council of Evansville; Helen Skinner, St. Joseph's College, Collegeville; and Fern Gable, Radio Station WOWO, Fort Wayne.

Following the panel, a luncheon was given for the college students present. Eleanor Ochs, dietetic intern, Indiana University Medical Center, told of her experiences as an intern.

The two speakers of the afternoon session were: Dr. Bernard Frazin, Chief of Neurology and Psychiatry, VA Hospital, Fort Benjamin Harrison, who talked on "Psychiatric Problem Children" and Professor H. T. Aurine, Purdue University School of Engineering. The latter's topic was "Work Simplification—An Aid to the Dietitian."

Iowa Dietetic Association. The meeting of the Iowa Dietetic Association in cooperation with the Iowa State

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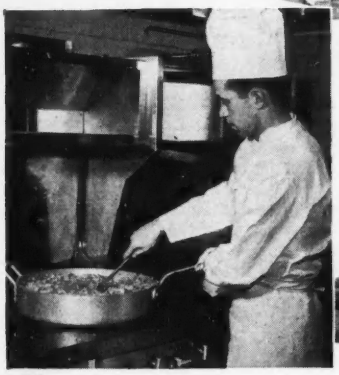

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Nutrition Council and the Iowa Home Economics Association, was held April 26 at Iowa State College, Ames. The Iowa State College Research Council also assisted. The program included:

"Nutritional Knowledge as Applied to the Consumer" by Dr. Clive McCay, Research Professor in Nutrition, Cornell University, Ithaca, New York

"Food Outlook" by Carl C. Malone, Professor of Agricultural Economics, Iowa State College

"The American Home Economics Association and the National Security and Civil Defense" by Florence Fallgatter, President, A.H.E.A.

"Food in an Atomic Emergency" by Dr. Adolf Voigt, Associate Professor of Chemistry, Iowa State College.

"The American Dietetic Association and the National Security and Civil Defense" by Clara Zempel, Professional Activities Director, A.D.A.

The program also included a panel discussion on "Iowa's Nutrition Problems in the National Security and Civil Defense" by: Dr. Genevieve Stearns, Research Professor in Pediatrics, University of Iowa, discussion leader; C. W. Bangs, Director, Division of Maternal and Child Health, Iowa Department of Health; and C. A. Iverson, Head, Dairy Industry Department, Iowa State College.

Kansas Dietetic Association. The essay contest on "Why I'd Choose Dietetics as My Profession" received front-page publicity in the Kansas City *Star* during April. Leis were shipped by air from the Hawaii Dietetic Association to the winners.

As an outgrowth of the Midcentury White House Conference on Children and Youth, the Kansas Dietetic Association has joined the Kansas Council of Children and Youth, which is carrying out the work of the Midcentury White House Conference.

Kansas dietitians have also been active participants in local career days and vocational guidance programs. Patricia Payer and Barbara Nobrega, University of Kansas Medical Center, spoke recently at the Southwest High School, Kansas City. For Career Days held at Kansas City University for high school seniors in May, the *Kansas City Dietetic Association* presented a skit, "The Thing," and displayed a poster "Launching a Career in Dietetics." In Wichita, high school senior girls were entertained in April by a field day sponsored by the *Wichita Dietetic Association*. The program included tours of hospitals and a tea. Talks have also been given at the University of Kansas, Lawrence.

Massachusetts Dietetic Association. The Massachusetts Dietetic Association held a joint meeting with the New England Hospital Assembly in Boston, March 28. The program included: "The Consulting Dietitian Rides the Circuit," by Kathleen Van Cleft, Chief Dietitian, Vermont State Department of Health, with Helen J. Phaneuf, Connecticut Department of Health, serving as discussant and "The Dietitian in Civil Defense Programs," by Dorothea Nicoll, Public Health Nutritional Supervisor, Massachusetts Department of Health, and Dr. Philip D. Bonnet, Director, Massachusetts Memorial Hopsitals. There was also a panel discussion titled "Solving Some Everyday Problems in Hospital Dietetics Through Good Menu Planning."

The April meeting of the Massachusetts Association was held in Worcester as a joint dinner meeting with the Worcester County Home Economics Association. Dr. Helen S. Mitchell, Dean, School of Home Economics, University of Massachusetts, Amherst, spoke on "Adult Nutrition, A Best Seller." The annual business meeting was held May 4 at the H. A. Johnson Company's new plant in Boston. Members of the Massachusetts Home Economics Association were guests. E. C. Johnson, President, of the company, spoke on "Vision in Business."

Minnesota Dietetic Association. The Upper Midwest Hospital Conference held its fourth annual meeting in Minneapolis, May 16 through 18. Dietitians, as well as other hospital groups, were represented in the program.

Lillian Storms Coover, A.D.A. President, opened the dietetic program May 16 with a talk on "The Dietetic Profession Today." She was followed by Dr. George Williams, Psychiatrist, Counseling Clinic, Public Health Center,

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Rochester, who spoke on "The Relationship of the Dietitian with the Patient, Student, and Employee." Dietitians also attended a general session on civil defense.

An open forum with audience participation was held by the various sections on May 17. The Food Administration Section chose as its topic "Interrelationship of the Dietary Department to Other Departments in Hospital." Discussion by the Community Nutrition Section was on "Child and Maternal Health," while the Diet Therapy Section considered "What's New in Nutrition?" Dr. Charles J. Turck, President, Macalester College, St. Paul, addressed dietitians at luncheon on "Events in a Changing World." Marion D. Floyd, Chairman, Food Administration Section, A.D.A., spoke on "Current Trends in Administration." The dietary program closed with a tea honoring the members of the A.D.A. Executive Board and Coordinating Cabinet who were present—Dr. Coover, Miss Floyd, Mary Reeves, Alice Biester, and Winifred Howard Erickson.

New York State Dietetic Association. The annual convention of the New York State Dietetic Association was held at Utica, May 10 and 11. The program included the following speeches:

"Recent Advances in Lipid Metabolism," John H. McKibbin, Ph.D., Associate Professor of Biochemistry, College of Medicine, Syracuse University

"Cholesterol—Clinician's Views," Dr. Norman Moore, School of Nutrition, Cornell University, Ithaca

"Delegation of Duties by the Dietitian," Margaret A. Ohlson, Ph.D., Head, Department of Foods and Nutrition, Michigan State College, East Lansing

"Best Use of the Hospital Dietitians' Time," Dr. L. L. Bryan, Assistant Director, Utica State Hospital

Also on the program was a joint section conference on "The Dietitian and the Community."

The *Buffalo Dietetic Association* as a group has become a member of the Erie County Nutrition Board. At the January meeting of the Buffalo Association, the therapeutic section planned a program to promote city-wide use of the new method of calculating diabetic diets. In March, Marjorie Husted—the first Betty Crocker of General Mills—spoke on woman's place in public relations at a joint dinner meeting with the Home Economics Association and the Home Economists in Business.

The *Greater New York Dietetic Association* in January conducted two workshops for members; one on administration, the other on diet therapy. The March meeting, held jointly with the Southeastern District of the Home Economics Association, featured a talk by Katharine Lenroot, Children's Bureau, Washington. The Greater New York Association also reports that several of its members are working directly with the civil defense program for New York. Dr. Mary deGarmo Bryan is chairman of a subcommittee of the Committee on Nutrition Requirements and Menu Planning, which is planning meals to be used in various types of emergencies and uses for foods which would normally be stocked in institutions. Information will be available to dietitians shortly concerning recipes, menus, and foods to be kept on hand.

The *Mid-Hudson Dietetic Association* entertained some twenty-five senior girls from four high schools in January, with an "open house" at the Nurses Home of Vassar Brothers Hospital. The gathering included a tour of the hospital during meal service, of the special diet kitchen, and explanations of work by the members.

The *Rochester Dietetic Association's* January meeting was a combined playlet and fashion show, emphasizing the importance of good grooming for dietitians. Dietetic interns from the Eastman Kodak Company and students of the Rochester Institute of Technology presented the skit. "Better Bread for Better Nutrition" was the topic of the February meeting. F. M. DeGroot, Food Consultant, Rochester Home Bureau, discussed the work of the Rochester and Monroe County Nutrition Committee in securing "Triple Rich" bread for their area and educating the public to demand it. Kathryn E. Flack, Director of Nutrition, New York Department of Mental Hygiene, spoke on the development of a bread enrichment program in the state mental hospitals.

In Rochester, the Community Nutrition and Diet Therapy Sections have, in working together on projects concerning

Reprints from the Journal

Old reprints from this Journal remain popular and in demand, although they no longer appear on the regular List of Publications and Reprints of the American Dietetic Association. Listed below are some of the most popular, which may be ordered by checking the boxes and sending remittance to the Association Office.

☐ Can Training Pay Dividends?—*A. H. Clawson* (May) 1947 ..... $.10
☐ Evaluation of a Training Program for Hospital Dietary Employees—*M. K. Espy* (March) 1948 ..... .10
☐ Points to Remember in Kitchen Planning—*O. Webber* (Dec.) 1946 ..... .10
☐ A Century of Progress in Nutrition—*C. M. McCay and E. N. Todhunter* (Sept.) 1948 ..... .10
Comparison of Meat and Legumes in a Controlled Feeding Program—*P. B. Mack et al.*
☐ I. Dietary Plan (June) 1947 ..... .10
☐ II. Medical, Dental, and Laboratory Observations (July) 1947 ..... .10
☐ III. Discussion of Findings (Aug.) 1947 ..... .10
Terminal Heating of Infant Formula—*F. R. Smith et al.*
☐ I. Bacteriological Investigation of Low-Pressure Technique (Sept.) 1948 ..... .10
☐ II. Bacteriological Investigation of High-Pressure Technique (Sept.) 1948 ..... .10
☐ Corn Starch as an Allergen—*T. G. Randolph* (April) 1948 ..... .10
☐ Trends in Family Food Consumption—Implications for Child Feeding—*H. K. Stiebeling* (April) 1950 ..... .10
☐ Bland Diet in Ulcer Therapy—*D. Johnson* (Aug.) 1947 ..... .10
☐ The Child and His Food. Group Feeding for Hospitalized Children. The Nurses Approach to the Feeding of Children—(July) 1949 ..... .15
☐ Free vs. Controlled Regime in Juvenile Diabetes—*P. White* (Sept.) 1949 .10
☐ Motivation in Health Education—*I. Galdston* (Sept.) 1949 ..... .10
☐ Nutritionists and Social Workers Cooperate on Mutual Problems—*E. Walsh* (Aug.) 1949 ..... .10

New reprints become available each month, as papers appear in the Journal. Some of the more recent reprints are listed below:

Dietary Consultation—A Service for Small Institutions
☐ I. Scope of Work—*Marian C. Jones* (Sept.) 1950 ..... $.15
☐ II. Menu Planning (Oct.) 1950 ..... .15
☐ III. Food Preparation, Storage, and Waste (Nov.) 1950 ..... .15
☐ IV. Problems of Sanitation (Dec.) 1950 ..... .15
☐ V. Rules of Sanitation—*E. B. Buchanan* (Dec.) 1950 ..... .15
☐ VI. Planning Layout and Equipment—*W. D. Robinson* (Jan.) 1951 .15
☐ VII. Employee Training—A Part of Personnel Management (Feb.) 1951 ..... .15
☐ VIII. Food Cost Accounting (April) 1951 ..... .15
☐ What Are Cleaning Materials? How Do They Work?—*S. J. Miller* (Jan.) 1951 ..... .15
☐ Limitations on the Use of Dietary Standards—*L. B. Pett* (Jan.) 1951 .15
☐ Our Professional Mirrors—*L. S. Coover* (Jan.) 1951 ..... .05
☐ The Professional Growth of the Intern—*L. S. Coover* (Feb.) 1951 ..... .05
☐ Workshop Techniques in Action—*I. J. Gordon* (Feb.) 1951 ..... .20
☐ Sodium Values of a Selected Group of Foods—*B. L. Irwin* and *C. Schuch* (Feb.) 1951 ..... .15
☐ Progress in Cereal Enrichment—*R. R. Williams* (April) 1951 ..... .15

Order any of the above reprints by checking the boxes to the left and sending remittance. A more complete *List of Publications and Reprints of The American Dietetic Association* is also available on request.

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PREMIUM SALTINE CRACKERS*

in moistureproof cellophane packets....

"More people buy NABISCO's Saltines than any other cracker"

CUT FOOD COST... BY CUTTING WASTE!

You get a real bonus in the new cellophane-wrapped PREMIUM Saltine Crackers! There is *no waste* caused by sogginess or staleness . . . *no waste* of "bottom-of-the-box" pieces and crumbs . . . *no waste of time in handling unused crackers and trying to keep them fresh.* Every PREMIUM Saltine packet you buy earns a profit!

BUILD PROFITS... BY SERVING QUALITY!

Your patrons know that PREMIUM Saltine Crackers in cellophane packets are *always* fresh, crisp and whole. They like the clean eye appeal of the package. And they'll enjoy having salty, flaky PREMIUM Saltine Crackers with soup and other dishes—or as a substitute for bread and rolls—even though it's a money-saver for you!

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SEND FOR THIS FREE BOOKLET packed with ideas on how to increase sales and cut food cost with NABISCO products including: *PREMIUM Saltine Crackers* • *TRISCUIT Wafers* • *RITZ Crackers* • *DANDY OYSTER Crackers* • *OREO Creme Sandwich*

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diabetes, formed a Diabetic Board composed of physicians and interested lay people, for the purpose of coordinating activities. The Rochester Dietetic Association provided the program for the April meeting.

Ohio Dietetic Association. Ohio dietitians are planning to exhibit at the Ohio State Fair this fall, as well as in the Junior Fair Program along with the Girl Scouts, Camp Fire Girls, 4-H Clubs, and the Junior Grange.

The *Cleveland Dietetic Association* recently took part in a vocational guidance program at the Cleveland Board of Education which was sponsored by the Inter-Club Council. The program featured hospital professions, with 5-min. talks on nursing, medical record librarians, physical therapy, occupational therapy, dietetics, and other hospital careers. Elizabeth Perry, Cleveland City Hospital, and Past-President of A.D.A., represented dietetics. The audience included junior and senior high school girls.

Oklahoma Dietetic Association. The annual spring meeting of the Oklahoma Dietetic Association was held at Oklahoma City, March 16 and 17. Approximately eighty dietitians registered, as well as many guests from the food field. One of the highlights of the meeting was a talk by Dr. Percy Buchanan, University of Oklahoma, in which he compared food habits in the U. S. and the Orient, where he has lived for many years. Another informative address was given by Lenore Sullivan, Professor of Institutional Management, Iowa State College, Ames. Her topic was "Food with the New Look." Other features of the meeting were: a panel discussion on diabetic diets, a discussion of "Buying During Time of Scarcities" by C. A. Tibbetts, and an after-dinner speech by Mrs. Lloyd M. White, Kansas City, Missouri, on millinery styles of various ages.

The Oklahoma Dietetic Association is assisting the Oklahoma Restaurant Association with a series of training courses for waitresses and food handlers in the smaller communities of the state as well as the larger cities.

The Oklahoma Association's scholarship award of $100 has been presented to Katheryn Philippi, Oklahoma A & M College, who plans to take her training in a hospital. Joan Forch, University of Oklahoma, was selected as the alternate for the award. Miss Forch plans to enter an administrative internship.

The Oklahoma Association also has a loan fund for the use of graduates of Oklahoma colleges during their internships or for interns in any of the three approved internships in the state.

On April 4 and 5, the Oklahoma Dietetic Association served as co-sponsor with the State Department of Health and the Oklahoma League of Nursing Education of a workshop on "Teaching of Nutrition in the Basic Curriculum in Schools of Nursing." Some fifty clinical instructors, teaching dietitians, and others from nursing and dietary departments in the state attended. Henderika J. Rynbergen, Cornell University-New York Hospital, served as leader.

The Community Nutrition Section reports obtaining menus from four child-caring institutions for cooperative study with Alice Strong, Institution Nutrition, Consultant, Oklahoma Health Department. The summary of this study was included in a report by Miss Strong.

The Professional Education Section has participated in the following projects since its appointment at the November meeting: cooperation with the state Public Relations Committee in publicizing dietetics as a profession to students through form letters; arrangements for a dietitian-speaker at a Future Homemakers Club meeting; a letter in the state Future Homemakers Newsletter announcing the availability of material and speakers; and distribution of materials to interested persons.

The *Tulsa Dietetic Association* is sponsoring nutrition consultation service by two members. They have recently compiled a manual on weight reduction.

Pennsylvania Dietetic Association. Pennsylvania State College was the scene of the 18th annual meeting of the Pennsylvania Dietetic Association on April 26 and 27. The first session took the form of reports on recent findings in foods, nutrition, and diet therapy. Other papers given during the meeting were:

WHY YOU SHOULD INSIST ON STANLEY

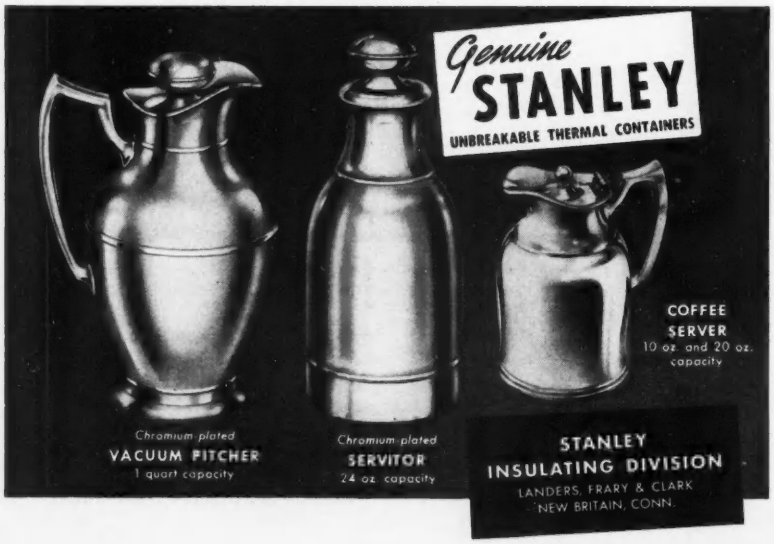
1. For your patients' sake. They really appreciate the way coffee and tea, even the second cup, keeps piping hot in a Stanley. By test genuine Stanleys keep beverages 20° hotter after 2 hours than do ordinary pots.

2. For Economy. Stanleys actually pay for themselves in reduced replacement. Nickel-silver shells, stainless-steel liners, make these servers and pitchers break-proof, chip-proof, crack-proof. No matter how many times a Stanley drops, it will not break.

3. For Cleanliness. Stanleys are easy to sterilize and keep clean. All seams are air-tight, water-tight. Stainless steel lining never needs replating.

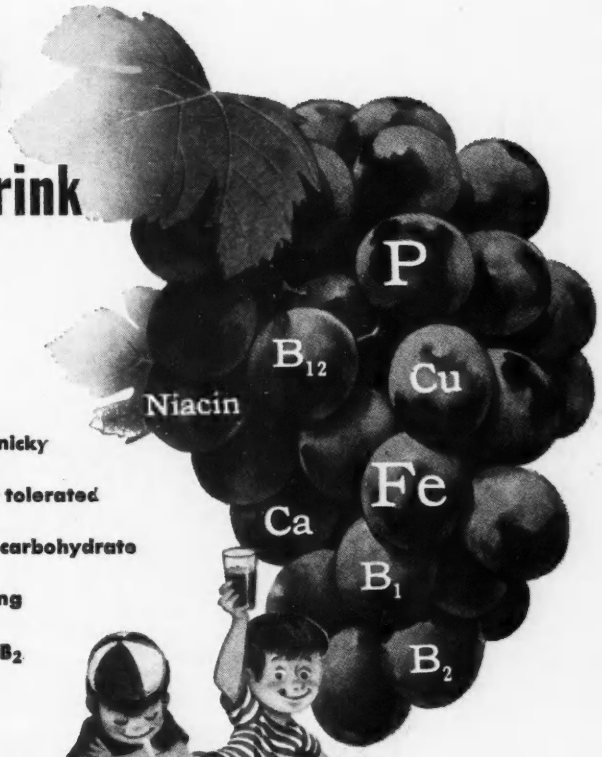
Today, unbreakable Stanley thermal servers are in use in hundreds of the nation's best equipped hospitals. If your hospital is not among them, write today for additional information.

Remember, no matter how many times a Stanley drops it will not break!



Grape Juice

the iron-rich* health drink children go for!



FOR a *welcome change* when appetites are finicky

FOR *easy digestion* when other juices are not tolerated

FOR the *quick energy* pick-up of easily utilized carbohydrate

FOR copper and B_{12}— important in potentiating the blood-building iron content — and as a valuable source of calcium, phosphorus, B_1 and B_2

Because It Tastes So Good

It is of particular value when a child is convalescing, run down, or a picky eater with decided food preferences.

★ 0.8 mg. Fe per 8 oz. glass. U. S. Dept. Agriculture Handbook #8, 1950, p. 29.

NEW!

Welch's Frozen Concentrated Grape Juice is now ENRICHED WITH VITAMIN C

An 8 oz. glass of the reconstituted juice contains 30 mg., more than the child's minimum daily requirement.

Recommend mixing with milk instead of water . . . the new PURPLE COW drink taken eagerly by children who dislike milk.

Welch's

FOR MORE THAN 80 YEARS!

Welch Grape Juice Company, Westfield, N.Y.

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"Current Studies of Diabetic Instruction in the Hospital" by Eleanor Kerchusky, Pennsylvania State College

"Summer Work Experience" by Aileen Konhauser, Pennsylvania State College

"Civil Defense in Pennsylvania" by Col. Baldwin Smith, Eastern Area Director for Civil Defense Commission of Pennsylvania, and Loyal Odhner, Managing Director, Chain Store Council of Pennsylvania

"Implications of Group Dynamics for Supervisors" by Loring Roach, Manager, Development Engineering, Standard Pressed Steel Company, Jenkintown

"Feeding the Aged" by Sister Maude Behrman, Director of Dietetics, Lankenau Hospital, Philadelphia

Other features of the program included a report on A.D.A. activities by Ruth M. Yakel, Executive Secretary; a panel discussion on "Training the Non-Professional Employee"; a report on the Midcentury White House Conference on Children and Youth; and tours through the Food Stores Building, new dining halls and kitchens of Pennsylvania State College as well as the Ellen H. Richards Institute.

Texas Dietetic Association. The annual convention of the Texas Dietetic Association was held April 13 and 14 in San Antonio. The program included:

"The Place of the Hospital in Disaster Planning" by Lt. Col. E. Geise, Assistant Director, Department of Administration, Medical Field Service School, Fort Sam Houston

"Dietary Trends in Medicine Today" by Lt. Col. Edward K. Mills, Chief, Womens General Medical Service, Brooke Army Hospital, Fort Sam Houston

"The Simplified Method of Calculating Diabetic Diets" by Doris Johnson, Department of Home Economics, University of Wisconsin, Madison

"The Army's Need for Dietitians" by Maj. Martha Moseman, WMSC Procurement Officer, Fourth Army

A panel discussion on burn therapy was also presented. Maj. Curtis P. Artz, Research Surgeon, Brooke Army Hospital, spoke on "Treatment of Burns," and Capt. Eric Reiss, Surgical Research Unit, Brooke Army Hospital, discussed "The Role of Nutrition in the Burn Patient."

A second panel discussion on dietitians and their duties was broadcast with the following dietitians participating: Loucille Langham Taylor, President, Texas Dietetic Association; Doris Johnson; Lola S. Beatty, President, San Antonio Dietetic Association; Maj. Martha Moseman and Capt. Elsie Miller, Brooke Army Hospital. A personnel relations workshop was held. Rosa Macri, Dietitian, U. S. Public Health Service, conducted a diabetes demonstration.

A breakfast meeting was highlighted by the reading of the history of the Texas Dietetic Association, at which time a roll call of charter members was made. Each member who had served as president of the Texas Association was called on for a response.

Washington State Dietetic Association. The Washington State Dietetic Association convention was held in Tacoma, May 11 and 12. The program included a talk by Dr. Hinton D. Jonez on use of allergy diets at the Multiple Sclerosis Clinic, St. Joseph's Hospital, Tacoma; and a discussion of cerebral palsy problems by Dr. Charles E. Kemp. Dr. Charles P. Larson spoke on prevention and treatment in event of atomic warfare.

"Buy Well to Eat Well" is a new radio program exclusively concerned with dietetics. This program is a project of the Public Relations Committee, Washington State Dietetic Association, in cooperation with Katherine Wise, home economist for radio station KOMO.

The *Spokane Dietetic Association* recently heard talks by Dr. O. Charles Olson on "Diabetes" and "Low-Cholesterol Diets." Officers for this year in the Association are: President, Emily Rose; and Secretary-Treasurer, Alice Fulton.

Association Activities

Civil Defense. A Civil Defense Conference was held at the Hotel Statler in Washington, D. C., May 7 and 8. The Association was represented by Lillian S. Coover, President; Grace Bulman,

How to make your Blodgett do DOUBLE DUTY
BAKES HERE
ROASTS HERE
Keep this Two-in-One Kitchen Tool busy and it will pay you double dividends. It is scientifically engineered to handle all baking and roasting operations. Sections are separately fired and controlled to supply the exact temperatures for each type of food. While one deck turns out quality controlled baked goods, another deck roasts your meats at LOW TEMPERATURE, retaining the juices, lessening meat shrinkage. Hot breads and pies etc. are done when your roasts are, ready to serve oven-fresh, thus coordinating meal-production.
Blodgett makes ovens from its "Basic Three" design which provides the units to make 24 models.
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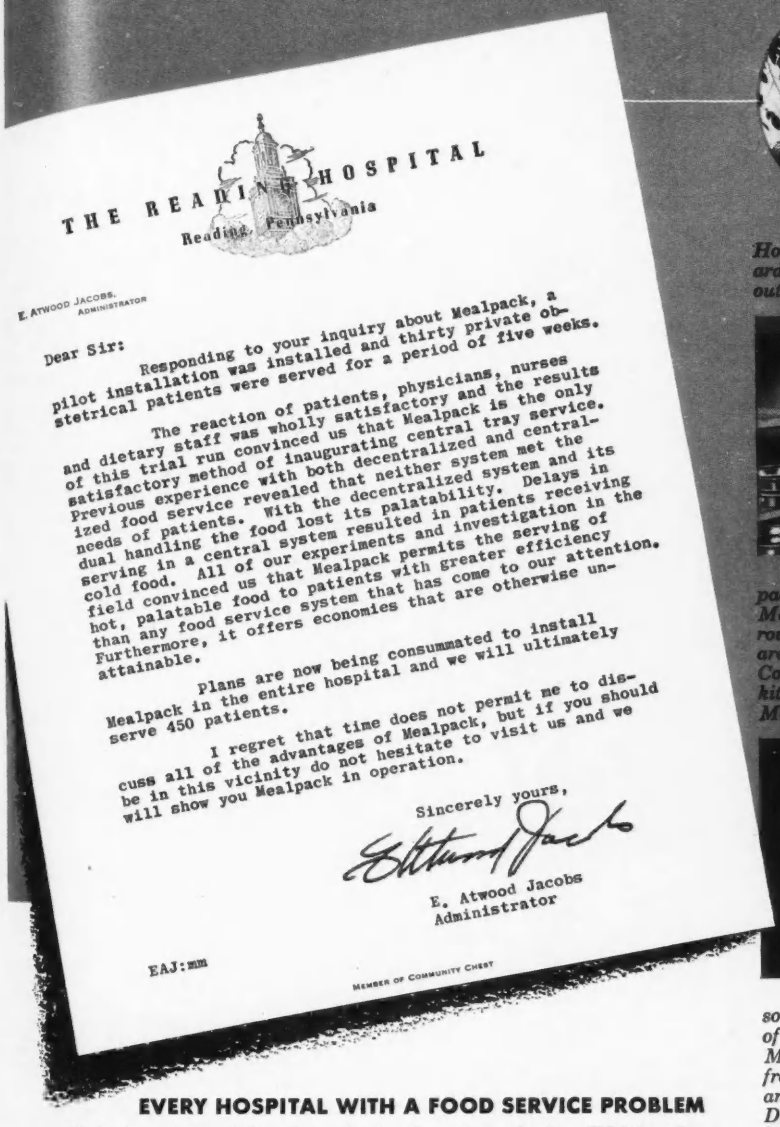

THE READING HOSPITAL
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E. ATWOOD JACOBS, ADMINISTRATOR

Dear Sir:

Responding to your inquiry about Mealpack, a pilot installation was installed and thirty private obstetrical patients were served for a period of five weeks.

The reaction of patients, physicians, nurses and dietary staff was wholly satisfactory and the results of this trial run convinced us that Mealpack is the only satisfactory method of inaugurating central tray service. Previous experience with both decentralized and centralized food service revealed that neither system met the needs of patients. With the decentralized system and its dual handling the food lost its palatability. Delays in serving in a central system resulted in patients receiving cold food. All of our experiments and investigation in the field convinced us that Mealpack permits the serving of hot, palatable food to patients with greater efficiency than any food service system that has come to our attention. Furthermore, it offers economies that are otherwise unattainable.

Plans are now being consummated to install Mealpack in the entire hospital and we will ultimately serve 450 patients.

I regret that time does not permit me to discuss all of the advantages of Mealpack, but if you should be in this vicinity do not hesitate to visit us and we will show you Mealpack in operation.

Sincerely yours,

E. Atwood Jacobs
Administrator

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MEMBER OF COMMUNITY CHEST

Clock tower *of magnificent Reading Hospital, Reading, Pa. Exacting standards of service are maintained throughout every department.*

A dietary employee *pre-heats Mealpack Containers' inner Pyrex dishes in Mealpack Dish Heater. After this simple routine, hot meats, vegetables, rolls, etc., are vacuum-sealed in insulated Mealpack Containers, ready for tray set-up at main kitchen and for flexible distribution via Mealpack Tray Carts.*

Student nurse Shirley Westman *adds soup, hot beverage and ice cream to one of the 20 trays carried on each trip of Mealpack's Tray Cart. Each Cart rolls from main kitchen direct to floor serving areas. Literally a "portable floor pantry." Delayed trays may be served up to 2 hours after provisioning!*

Delicious, selective menus *for every patient—hot foods* HOT *and cold foods* COLD. *And Mealpack enables you to make very substantial cuts in food service costs.*

EVERY HOSPITAL WITH A FOOD SERVICE PROBLEM will find real food for thought in the above letter. Written by an outstanding Administrator, it answers many hospitals interested in Reading Hospital's reasons for converting its buildings (450 beds) to MEALPACK service for all patients.

the Mealpack System is operating in hospitals, old and new, with from 20 to 500 beds. It has been adopted, in virtually every case, after surveys and pre-testing have proved its advantages and economies.

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Clarice Gullickson, and Georgia Smith of the District of Columbia Dietetic Association; and Dorothy Friedman of the Massachusetts Dietetic Association.

Another meeting on civil defense was held April 19 and 20 in Chicago in conjunction with the Middle States and Illinois Public Health Associations. Lucile Billington, Chairman, Civil Defense Committee of A.D.A., was a member of the panel at this meeting. Clara Zempel, Professional Activities Director, A.D.A., also attended.

Association Meetings. The Library Committee met again on April 19 to continue its work of sorting and revising material.

The Program Advisory Planning Committee met May 8 to make further plans for the coming Annual Meeting in Cleveland.

June 22 and 23 are the dates set aside for meetings of our Executive Board and Finance Committee.

Visitors to the A.D.A. Office. During May an unusually large number of A.D.A. members visited the headquarters office to become acquainted with the staff members and facilities. Most of these members were in Chicago to attend the Tri-State Hospital Assembly and the National Restaurant Association convention.

Our Representatives. Marion E. Gray, University of Toledo, acted as our representative at the inauguration May 9 of Asa Smallidge Knowles as ninth president of the *University of Toledo*.

Sarah Thames, University of New Hampshire, represented the Association at the inauguration of Robert Flint Chandler, Jr., as twelfth president of the *University of New Hampshire* in Durham, on April 25.

Several members of the A.D.A. staff were guests at a luncheon meeting of the *Nutrition Foundation, Inc.*, held at the Stevens Hotel in Chicago, April 12. Speakers were Dr. Robert D. Calkins, Director, General Education Board, Inc., and Dr. Charles Glen King, Scientific Director, Nutrition Foundation.

Exhibits for Allied Associations. When the convention of the *American Association for Health, Physical Education, and Recreation* was held in Detroit early in April, A.D.A. was invited to present an exhibit. Photographs of dietitians at work and appropriate reprints from the JOURNAL were used. The Detroit Dietetic Association assisted by setting up the exhibit.

The food model exhibit, "The Diet of the Child 10-12 Years Old," was sent to the annual meeting of the *Illinois State Dental Society* in Peoria, May 7 to 10. Our booth was supervised by members in Peoria under the direction of Ruth Gorsuch.

The exhibit, "Dietitians, Nutritionists Serve the Community" was shown at the *National Conference of Social Work*, held in Atlantic City, May 13 to 18. This is the first time we have exhibited with this group. The booth was supervised by Crystal Roney and members of the New Jersey and Pennsylvania Dietetic Associations.

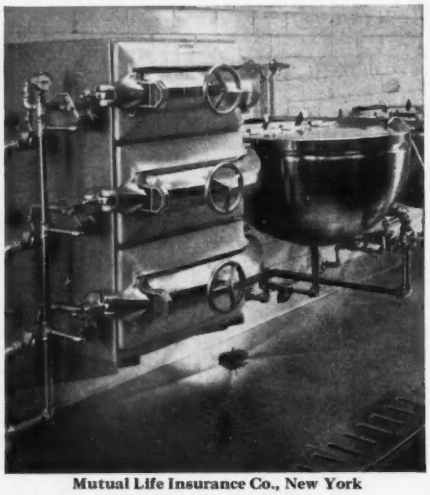
A.D.A. food models were used in an exhibit presented by the Indiana Dietetic Association at the *Indiana Dental Association* meeting in Indianapolis, May 20 to 23.

The food model exhibit, "Meals for the Low-Calorie Diet," was presented at the convention of the *Illinois Medical Society*, held in Chicago, May 22 to 24. Members of the Chicago Dietetic Association supervised the booth.

The exhibit, "Dietitians, Nutritionists Serve the Community," was displayed at the *Catholic Hospital Association* convention in Philadelphia, June 2 to 5. Members of the Philadelphia Dietetic Association manned the booth.

Another "first" for the Association is our participation in the annual meeting of the *American Medical Association* in Atlantic City, June 11 through 15. We have been invited to participate in an exhibit symposium, presenting the low-calorie diet. In addition to a normal, low-calorie diet, our exhibit will feature material on the low-sodium diet, the diabetic diet, and the low-cholesterol low-fat diet. After this meeting, this exhibit will be available to the state associations. Crystal Roney and members of the New Jersey and Pennsylvania Dietetic Associations will assist at the booth.

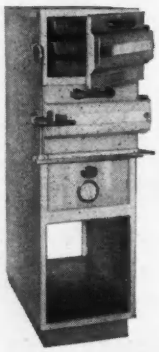
4 out of 5 First Awards in Institutions Magazine Contest go to Steam-Chef Users



Mutual Life Insurance Co., New York
(wall-mounted Steam-Chef steamer)

This year, as in years past, outstanding food service operators, as typified by top names in this famous Institutions Magazine competition, have chosen Steam-Chef cookers for their kitchens —and by a clear majority over any other steamer.

The following winners of FIRST AWARDS—4 out of 5—are Steam-Chef owners: The Berghoff, Chicago, Ill., Brown University, Providence,. R. I., The Mutual Life Insurance Co., New York, N. Y., St. Vincent's Hospital, Toledo, Ohio.



2 compartment Steamcraft. Furnished for direct steam, gas or electric operation. Base and indicating timer shown are additional.

In addition, more than half the roster of winners in all classes are Steam-Chef users. All this is further proof, if any were needed, of the national acceptance of Cleveland Range steamers—Steam-Chef and Steamcraft—as preferred equipment. Where so many other experts have demonstrated preference, you may safely do the same. Plan now to put Steam-Chef or Steamcraft to work in your own kitchen.

Steam-Chef heavy duty steamers come in 1-2-3-4 compartment sizes. Steamcraft junior steamers are supplied with 1 or 2 compartments for table or counter use, or with bases. Any of these steamers may be obtained for direct steam line connection, or for electricity, or any kind of gas. Write for full details.

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